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Railway Age

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RAILWAY AGE

Two Railroad Stories — A Significant Discrepancy

What is the significance of the fact that nothing was said at either the Republican or the Democratic national convention about the transportation question? Has the "we are ready" publicity campaign of the railroads in reference to national defense been so successful it has convinced the public that the railways need no changes in government policies? And if the railroads need no such changes, why have they been demanding them for years? Or was the failure of either party to say anything about transportation due to failure of spokesmen of the railways to make any presentation to their platform committees? If so, should not such presentation have been made? Or was the failure of both parties to say anything about transportation due to belief by them that the transportation situation is so bad it presents a non-partisan question, and that neither party should say anything about a situation so non-partisan and bad?

Present Railroad Claims Don't Gee With Those of Pre-War and '20's

The impartial but uninformed onlooker would say there was either something phony about what was said and demanded about the railroad situation in the past or that there is something phony about what is being said and demanded about it now. Many readers of this paper can recall that before the first Great War spokesmen of the railways and their associations were complaining because the railway industry was being allowed to earn an average return of **only** $5\frac{1}{2}$ per cent on its investment, and predicting this would render the railways unable to provide adequate service and cause disaster to the country; and that they later attributed the "break-down" of the railways during the war to these inadequate earnings. They can also recall when in 1922 after the Great War the Interstate Commerce Commission held the railways were entitled to earn an annual average of $5\frac{3}{4}$ per cent on their investment, and when subsequently for years spokesmen of the railways complained they were being treated contrary to

the public interest because they were being allowed to earn an average over a period of years, of **only** $4\frac{1}{2}$ per cent.

As a matter of fact, in the ten years ending with 1930 the net operating income of the railways averaged 999 million dollars annually; and, after adding "other income" and deducting fixed charges, their net income available for dividends, etc., averaged 619 million annually. During the ten years ending with 1939, on the other hand, their net operating income averaged less than 538 million dollars annually, or about 2.1 per cent on investment; and their net income available for dividends less than 74 million annually. And yet the principal story the railways are telling the public now is more optimistic than the principal story they were telling it then. Their principal story back there was that they needed more net operating income and net income to maintain their credit and provide for all future probable or possible public demands upon them. Their principal story at present, after their net operating income for ten years has been only about 60 per cent and their net income only 14 per cent as large as during the preceding decade, is that they are ready to meet any demands upon them.

We Used to Assume Progress. Now We Assume Unending Depression

Why the obviously very wide discrepancy between these two stories? Does it follow, because of the discrepancy, that one or the other story has been or is dishonest? The correct answer is most significant. The story always told before the depression was premised upon the assumption that economic progress, with an occasional setback, was going to continue in this country as it always had. The present story is premised upon the assumption that the depression, which has now lasted for ten years, is going to be permanent. It is ten years of depression that have belied those who complained that the railway net earnings of the '30's were inadequate, because those net earnings, con-

trary to all reasonable expectations, did enable the railways to expand their investment and plant more than was needed.

Will the present claim that the railways are "ready" be vindicated by future developments? Only if the depression continues. A real and rapid expansion of production and commerce would speedily present the railways with a traffic to which their available equipment would prove wholly inadequate.

What, then, should railway management be doing? Along with all other persons and interests, it should, first of all, be doing all it can to end the depression; and the best contribution it could make toward this end would be to make a really energetic and courageous fight for an increase in net earnings. It is all very well to talk about the railways being ready to serve the public, and how disastrous it would be to the public for government operation to be adopted; but isn't it about time to give a little more thought to the investors in railroad securities who made our railroad system possible, and by their investment and sacrifice in the '30's made possible even its present readiness? The railroads are a part of our national system of private enterprise. Almost everybody wants to see them continued as such. But how long can any enterprise be expected to remain private which constantly pays higher hourly wages to its employees, higher taxes to the government and a diminishing return, threatening entirely to disappear, to its stockholders? And why should its stockholders care whether such an enterprise stays private—unless exceptionally patriotic?

Railroads Need a New Program

It is high time, in our opinion, that railway management should adopt another program to present to Congress and the people; that that program should include promotion of general economic policies to help end the depression as well as promotion of transportation policies in the public interest; and that it should especially include promotion of policies in the interest of railway stockholders. Railway management cannot truly boast it is really doing a good job as long as only about one-sixth as much net income is being earned for railway stockholders as was earned for them in the decade before the present depression.

Police Co-Operation at Grade Crossings

While everyone appreciates the tendency of the extensive program of elimination, separation and protection of railroad-highway grade crossings to lower the number of accidents at such crossings in recent years, it is little comfort to find that there were only 18 fewer such accidents in the United States in 1939 than in 1938, and that the total number remained as high as 3,476, resulting in 1,398 fatalities and 3,999 injuries.

And it is disturbing to learn from the latest figures that there was a sharp increase in the number of grade crossing accidents during the first five months of 1940, resulting in 194 more fatalities and 345 more injuries than in these months of 1939.

While 176 pedestrians were killed and 110 injured at grade crossings in 1939, and 12 persons were injured, fatally or otherwise, in crawling over or under cars, it is not such accidents at crossings that are of the greatest concern to the public. The real problem is created by motorists. The records show that the percentage of grade crossing accidents in which motor vehicles are involved is excessively high and has changed but little in recent years. This percentage was 89.6 of the total number in 1937; 88.41 in 1938; and 88.58 in 1939. Accidents to motorists accounted for a total of 16,535 persons killed or injured at grade crossings in these three years—more than 92 per cent of the total.

It is difficult to appraise the mental state of the motorists involved in these accidents. The record for 1939 shows that there were no unusual railroad operating conditions in connection with 95 per cent of the accidents at crossings; that there were more of them in the daytime than at night; that of the 3,079 collisions between trains and motor vehicles, 1,096 were caused by the motor vehicle running into the side of the train; and that the speed of trains was not an important factor, 48 per cent of all crossing accidents in which freight trains were involved occurring when train speeds were less than 20 miles an hour and 10 per cent when trains were actually standing still. Also, 33 per cent of the accidents in 1939 involving motor vehicles occurred at crossings protected by gates, watchmen, trainmen or audible or visible signals to indicate the approach of trains.

No one would contend that all of the large number of grade crossing accidents involving motor vehicles are caused by the willful disregard of precautions by motorists. But a large proportion of them are. Why are warning signs or stop lights at highway or street intersections much better observed than similar signs or lights at railroad-highway grade crossings? Apparently not because the motorist has a higher regard for safety at the former, but because of the compulsion at these crossings established by law and rigorously enforced by local and state police. And it is becoming increasingly clear that rigorously enforced laws requiring safe motor vehicle operation at grade crossings will materially improve the record of accidents at these points. The same respect can be built up by local and state law enforcement agencies for railway crossing signs and signals as prevails for highway intersection signs and signals; and it would appear in the interest of the public and the railways that everything possible be done to influence these agencies to build up such respect.

It has been demonstrated clearly that at busy street and highway intersections within cities where it is com-

mon practice for police officers to be on duty only during the critical hours of the day respect for traffic signals throughout the day can be established; and the Chicago, Milwaukee, St. Paul & Pacific has shown that even limited attention by law enforcement officers is effective in commanding continuing respect at railroad-highway crossings for lawful and safe practices. This road has secured the co-operation of local and state police generally along its lines in stationing uniformed men at the more important crossings throughout at least the busiest hours of the day. They are not there necessarily as watchmen or enforcement agents seeking violators of law, but rather for the restraining effect

which their presence may exert. That the limited presence of these officers at crossings has a restraining influence on motorists is evidenced by the fact that accidents have been practically eliminated at crossings thus policed.

The work of grade crossing elimination, separation and protection should proceed; but, at the same time, other means of reducing accidents at grade crossings should not be overlooked. These means include stimulation of greater co-operation on the part of law enforcement agencies. Their appearance at crossings for at least periods during each day evidently helps to reduce accidents and therefore should be encouraged.

Is Truck Regulation a Failure?

There were many who thought that passing a law regulating motor carriers was all that would be needed to end the competitive chaos in transportation, substituting in its stead a sound, co-ordinated national transportation system. We have now had more than four years under such a law, but there are reasons for doubting that transportation as a whole is on even as sound a basis as it was in 1935.

Motor carrier facilities have increased, probably, at least 40 per cent since the law went into effect, without any increase in basic traffic. The improvement in freight transportation service, as a whole, in this period has been far from revolutionary. Shippers are paying on the average, probably, 10 per cent more than they were. Just wherein do these observations give evidence of any contribution by the Motor Carrier Act to sounder transportation conditions?

The power is given under this law to restrict the development of superfluous facilities—which tend to increase the total cost and/or detract from the total service of transportation to the American public—but such power has been exercised sparingly if at all.

The law leaves no question as to the power of the regulatory authorities to examine into the economy of existing facilities, to decide those the preservation of which is necessary to the public interest, but no such examination has been made.

Unless transportation facilities at the time of this law's enactment in 1935 were grossly inadequate—which obviously they were not—then it follows that the proliferation of transportation facilities since that date has produced a wasteful excess of such facilities at the present time; a waste which *somebody* is paying for. If such excessive and duplicative facilities are contrary to the public interest (as they obviously are, since they entail social costs without commensurate social benefits), why have not the supposed guardians of the public interest done anything to prevent such waste?

What, if anything, has been done by the motor carriers through their national organization, or otherwise, to bring about a sounder, more economical and better co-ordinated system of motor and rail transportation?

What has been done by the railroads through their national organization, or otherwise, except by the necessarily limited action of individual carriers, to bring about a sounder, more economical and better co-ordinated system of motor and rail transportation?

That so little of a constructive nature has been accomplished under the act does not necessarily

prove that there is anything wrong with the law. It may indicate instead that the regulatory powers granted by the law have been exercised timidly and with an eye toward placating vested interests, rather than resolutely and consistently in the public interest.

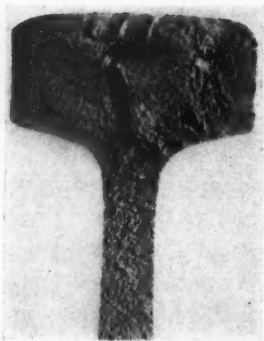
The I. C. C. has ordered an inquiry into motor and railroad classifications *and railroad rates*, but no hearings have been held, and, seemingly, none is in immediate prospect. Besides, it appears that the Commission has failed to include the vital question of motor carrier rates in its otherwise comprehensive inquiry.

The motor carriers, railroads and shippers have appointed committees without end and many of them have made many sound recommendations, but where can we point to any widespread acceptance of a single major recommendation by any such committee? There always seems to be, in any such group, a powerful minority with a vested interest in the *status quo*, which is always able to make its veto power predominate over all constructive efforts.

If the above observation is too sweeping, and there actually have been major co-operative accomplishments, we should be very glad to have them brought to our attention. The purpose of these discussions is not to prove a point or win an argument, but solely to get at the facts.

If, as is now quite generally alleged, nothing worth while has been done to further the "inherent advantages" policy declared by Congress for transportation, and in the desirability of which all interests agreed, then how and by whom is the present stalemate to be broken? Many truck operators are clearly profiting from the do-nothing status and cannot reasonably be expected to break it. There is too much self-interest by specific shippers in certain aspects of the *status quo* for them to agree sufficiently among themselves to break it.

This leaves the Commission and the railroads as the only likely possibilities. No one wants cumbersome, expensive and long-drawn-out hearings before the I. C. C. But the railroads have the power to break the deadlock. They also stand to gain if they will do so—because they are bearing, in depleted traffic, most of the costs of the present uneconomic expansion of facilities.



Rail on Pennsylvania That Developed Large Transverse Fissure From a Slag Inclusion

More Light on Rail Defects*

Sixth progress report on study of failures, sponsored by the railways and the rail manufacturers, gives further information on results of heat treatment and end hardening



Rail From Baltimore & Ohio That Developed a Transverse Fissure From a Slag Inclusion

By Dr. H. F. Moore

Research Professor of Engineering Materials,
University of Illinois, in charge of investigation

THE first three progress reports of the Investigation of Fissures in Railroad Rails, being conducted jointly by the railways and rail manufacturers, were concerned primarily with the problem of internal fissures in rails,[†] while the fourth and fifth reports and this, the sixth report, concern themselves primarily with the results of control-cooling and end hardening.

In September, 1939, there were 2,088,000 tons of control-cooled rail and 93,425 tons of Brunorized rails in railway service, the length of service of these rails varying from a few months to about five years. A total of six control-cooled rails and six Brunorized rails have been reported to the investigation committee, which have either broken in the track in service or have been found by a detector car. All of these failures were reported as having been caused by transverse fissures. The most careful laboratory tests have shown, however, that four of the control-cooled failures were not caused by transverse fissures and careful etch tests have failed to disclose any shatter cracks in any of the control-cooled rails.

Fissures were found in the four failed Brunorized rails that were examined but these rails were all rolled in December, 1937, before the Brunorizing process was modified to include holding the rails above 1,000 deg. F., for two hours before entering the Brunorizing furnace. It is emphasized that no transverse fissure failures have been reported to the investigation staff of rails treated by the Brunorizing process now in use, which includes a two-hour holding period after the rail is rolled before it goes into the Brunorizing furnace.

Examination of the six control-cooled rails that were reported as having been caused by transverse fissures showed that one fracture started in a base seam, another was purely a broken base, the third was a progressive failure starting from head checks in a wheel-burned area on the gage side of the rail, and the cause of the fourth failure was undetermined because part of the broken rail was missing. There was some evidence to indicate, however, that it started from a crack in rolled-out metal

on the outside of the rail, this rail having been in service on the high side of a 4-deg. 45-min. curve. An illustration of this rail is shown. Two of the rails failed by reason of transverse fissures. In one case, however, inception of the fissure was traced to slag inclusions located close to the running surface of the rail, quite outside of the zone in which shatter cracks usually occur; and in the other the underlying cause was believed to have been the same, although this fissure apparently developed from a longitudinal crack.

None of the control-cooled rails which have failed in service or have given evidence of failure and which have been sent to the laboratory for examination show a single case of a fissure, transverse or otherwise, starting from shatter cracks. The rails reported by the Pennsylvania and the Baltimore & Ohio, and which are shown in the illustration, did show transverse fissures starting apparently from quite abnormal inclusions. So far, none of these rails can be regarded as failures of the control-cooling process to prevent transverse fissures. The control-cooling process is supposed to inhibit the formation of shatter cracks and no one of these rails shows any evidence of shatter cracks. The control-cooled process does not by itself render a rail especially resistant to wear, shatter or damage from head checks arising from such wear, or from burns.

Recommended Practice for Control-Cooling

The recommended practice for control-cooling of rails which now serves as a basis of accepted practice was written in 1937. Since then improvements have been suggested as a result of the studies made by the rail investigation of time and temperature in control-cooling. It has been found, however, that under some conditions certain rails in mill cooling boxes cool more rapidly than the rails in the middle of the pile where the control thermocouple is placed in accordance with recommended practices. In general, the quicker cooling occurs in the rails on the bottom layer and in some cases also in the layer next to the bottom one.

To establish a satisfactory technic in control-cooling, tests were made in one mill in the United States and one

* Presented before the recent convention of the A. R. E. A.

† Abstracts of the first four progress reports on the investigation of fissures in rails were published in the issues of the *Railway Age* of August 31, 1935, page 269; July 4, 1936, page 25; June 12, 1937, page 980; and July 23, 1938, page 160. No abstract of the fifth progress report was published.

in Canada. These tests consisted of cutting one rail into 13 or more pieces about 2 ft. long at the hot saws and cooling 12 pieces separately in small boxes packed with varying amounts of rock wool insulation. The thirteenth specimen was cooled in air as a control specimen to determine the tendency of that rail to develop shatter cracks. In tests of this character it is necessary to work with rails that have never cooled to room temperature because shatter cracks form only during the first cooling of the rail and at a temperature in the neighborhood of 200 deg., F., for carbon steel rails. However, it has been shown that shatter cracks form at a considerably higher temperature in intermediate manganese steel rails, probably somewhere in the range 500 to 600 deg. F. More than 400 specimens have been cooled in the manner indicated and tested for shatter cracks at the University of Illinois laboratory. More than half of the ingots from which the rails were rolled were treated with hydrogen to insure the presence of many shatter cracks in the air-cooled specimens.

The specimens used in the last two tests were removed from the boxes at various temperatures and cooled to 100 deg. F., under a 3-ft. mill fan and were then placed in ice water for eight hours to represent the fastest cooling a rail might experience when removed from mill-cooling containers in zero weather.

It was found that when a rail was removed from the cooling box after 3-hr. and cooled under the fan and ice water, it developed more shatter cracks than the specimen which was cooled from the rolling heat in air in approximately one hour. It also took one hour longer in the boxes to prevent the formation of shatter cracks when

the specimens were cooled under the fan and in ice water after removal from the cooling boxes than had been the case for any previous test in which the specimens were cooled in still air after removing from the cooling boxes. The conclusion from all of these tests was that seven-hours was the maximum time required to cool from 700 deg. to 300 deg. F., to insure the prevention of shatter cracks in rails even from hydrogen-treated ingots and that the sudden cooling of rails upon removal from the containers after seven-hours does not produce shatter cracks.

Another type of test was made to determine the time necessary to hold rails at various constant temperatures to prevent the formation of shatter cracks. These tests were made on specimens similar to those already described, and were from hydrogen-treated ingots. They were cooled on the mill floor to temperatures of 1100, 900, 700, and 500 deg. F., respectively, and all but the control specimens were placed in a gas-fired furnace and held at the respective temperatures. The formation of shatter cracks was prevented by holding the specimen three-hours at 1100 deg. F.; four-hours at 900 deg. and 700 deg.; and five-hours at 500 deg. These tests also furnished evidence that after the rails have been held a sufficient time at a given temperature, fast cooling to freezing temperatures is not dangerous.

The results of these tests indicate that there is no danger of shatter cracks in the slowly cooling rails, while the likelihood of shatter cracks in any rails which may cool rapidly in the container will not be changed. A further result of these tests gives ground for hope that by the use of insulation alone even the fastest cooling rails in a container may cool slowly enough to inhibit the formation of shatter cracks.

Field Tests for Batter on End-Hardened Rails

A series of tests to gather information about batter of end-hardened rails is under way on a group of test rails on the Chesapeake & Ohio, near Carey, Ohio. Nine lots of 100 rails each have been laid in the northbound track, beginning about two miles northwest of Carey.

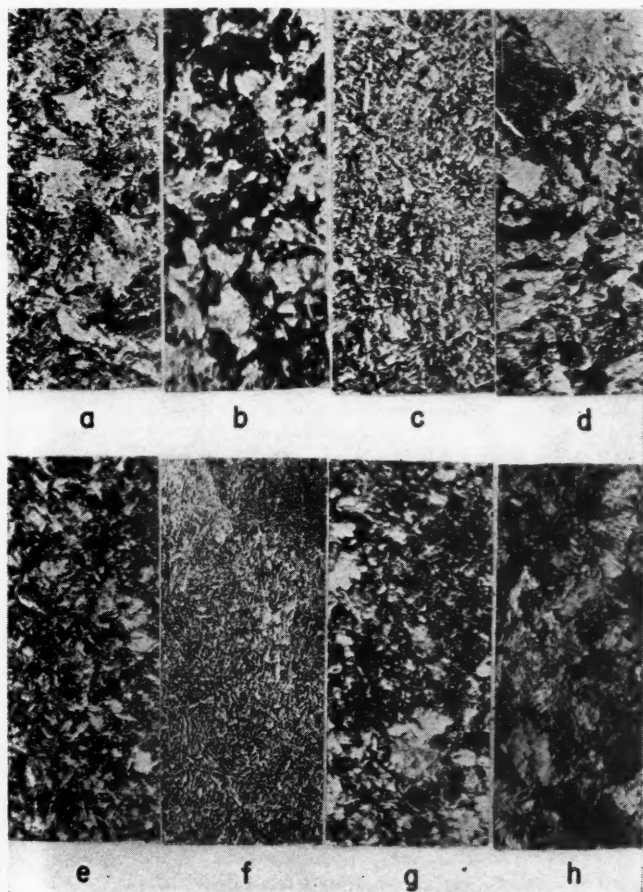
The original plan for the test provided that measurements of batter and hardness should be made on the test rails: (1) at the time of laying; (2) one month later after the track had been resurfaced; (3) three months after laying; (4) six months after laying; and (5) at intervals of six months thereafter. The actual laying of these rails was begun on April 6, 1939, and was completed on April 10, 1939. Three sets of observation measurements had been completed at the time the report was written. These nine lots of rails represent eight different end hardening processes, processes 2, 3, 1 and 6 representing the end hardening processes applied at the rail mills during fabrication of the rail, while processes 7, 9, 10a and 10b were applied in the field after the rails were laid. A description of the end hardening processes, in the order of laying, follows:

Field-Hardened Rails

Process No. 7—Oxy-acetylene heating; quenched by adjacent cold metal. To insure uniform hardening, the mill scale was removed by grinding.

Process No. 9—Oxy-acetylene heating using a free-held torch; quenched by sprinkling with a measured amount of water, then tempered.

Process No. 10a hard—Oxy-acetylene heating, water quenched, all operations controlled by machine. Of the two lots of rails hardened by this machine these rails were treated to have the greater hardness. Most of these



Crystalline Structure of Samples of End-Hardened Rail from Chesapeake & Ohio Test Tracks

Magnification 380 Times. (a) By Process No. 1; (b) by Process No. 2; (c) by Process No. 3; (d) by Process No. 6; (e) by Process No. 7; (f) by Process No. 9; (g) by Process No. 10a, hard; and (h) by Process No. 10b, soft

rails were retreated in October to reduce the hardness.

Process No. 10b soft—This is the softer of the two lots of rails hardened by this process.

Non-hardened rails for comparison.

Mill-Hardened Rails

Process No. 2—Gas heating; compressed air quench.

Process No. 3—Water quench from the rolling heat.

Process No. 1—Teleweld induction heating; water quench.

Process No. 6—Quenched by compressed air on removal from the Brunorizing furnace.

Members of the test party were present during and immediately after the laying of the test rails and obtained the following measurements:

1. Initial readings with a 10-in. A. R. E. A. type batter gage of all joints. Measurements of joint gaps were also made.

2. Cross sections of about 10 per cent of the rail heads, using the Pennsylvania's cross-section recorder. These records will permit a determination of rail wear under traffic.

3. Brinell-hardness measurements of the hardened rail ends and also on the unhardened rail, using the portable Brinell hardness testers described in the Fifth Progress report.

A list of all joints having a difference in height between the leaving and receiving rail of more than 0.01 was given to the representatives of the railway and these joints were ground off to bring both rail ends to approximately the same level. Out of the 900 test joints, 220 were ground before the second series of field measurements was made.

The surfacing of this rail was not completed until about June 1, so that the 30-day test was omitted. The second series of measurements was made in June soon after the track had been resurfaced. By this time, 1,800,000 tons of traffic had passed over the test rails. The third series of measurements was made in October, 1939, at which time the rails had been in service for a period of six months and had carried a total of 21,500,000 tons of traffic. Obviously, the test rails have not been in service long enough to show any appreciable batter, and the number of observations are too few to draw any conclusions.

Metallographic Tests Also Being Made

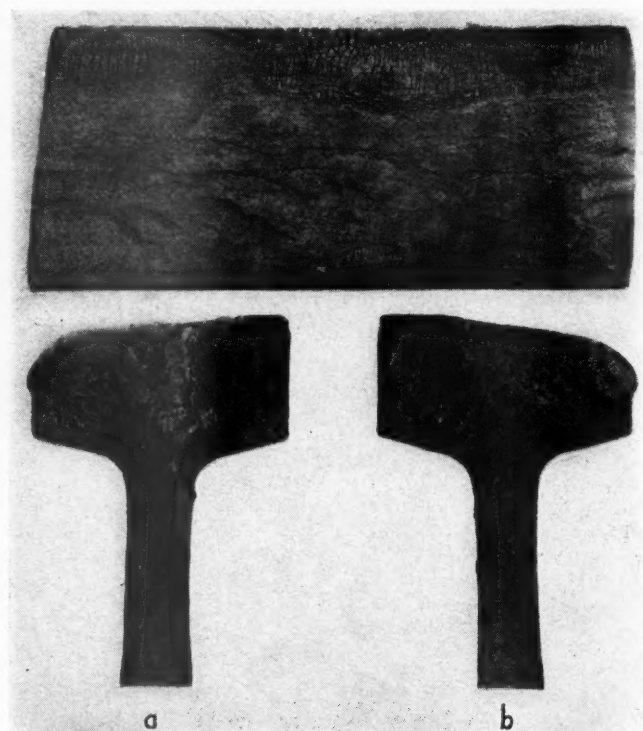
When the test rails were rolled, two 3-ft. specimens from the same heat as the rails were end hardened for a laboratory test. In addition, when the rails were rolled for the four field end-hardening processes, two extra pieces were provided from each heat to be end hardened for laboratory test. Some of the rails end hardened by Process 3 showed a narrow zone about $\frac{3}{16}$ in. below the surface of the rail which is from 3 to 4 Rockwell C numbers softer than the metal either above or below.

The cause of this soft zone is not yet clearly understood, although it seems to be characteristic of the water-spray quench from the rolling heat, process No. 3, as it has been found in several rails treated by this process besides the two furnished for the test. Another interesting development is that quenching cracks have been found usually near the top corner of the rail but occasionally they extend almost the entire width of the head parallel with and approximately $\frac{3}{16}$ in. below the top surface. They are always quite shallow and as a rule do not go into the end of the rail more than about $\frac{1}{32}$ to $\frac{1}{16}$ in. The test rails in service will be watched to determine whether any of the cracks grow in width or depth under repeated wheel loads.

Photo micrographs, shown in the accompanying illustration, were made from the end hardened material obtained from rail samples representing the test rails. They were taken on a transverse section $\frac{1}{2}$ in. from the end of the rail and $\frac{1}{8}$ in. below the running surface. The structures shown are average representations of the hardened material magnified 380 times. It is interesting to note that there is considerable variation in the size of the grain produced by the different processes.

Mechanical Tests Given End Hardened Rail

Specimens were cut from samples of the end hardened rails representing each of the end hardening processes to provide comparative data as to the effectiveness of the end hardening process. Specimens were cut from the end hardened material and a companion series of



Top—Head Checks in Driver Burn on Gage Side of Running Surface. Bottom—Double Failure Starting from Head Checks in This Rail. (a) Fracture at One End of Fragment; (b) Fracture at Other End

unhardened specimens was machined from each rail sample. These specimens were subjected to tension tests and to Charpy impact tests with unnotched samples. All four of the mill-end hardening processes gave increased values of tensile strength, per cent elongation, per cent reduction of area and toughness for the end hardened material as compared to the unhardened rail steel. For those rails which were tested, the data indicates that in general, the end hardening processes 1 and 2 increased the elongation, reduction of area and impact values somewhat more than processes 3 and 6 did. In general, all four of the field end-hardening processes gave increased values of tensile strength, per cent elongation, per cent reduction of area, and toughness for the end hardened material as compared to the unhardened steel.

The micrographs which are shown, a through d, were obtained from the end hardened materials produced in the test rails by the mill end-hardening process while those in the lower row, e through h, were obtained from end-hardened material in the field-hardened rail. The

result of these mechanical tests indicated that what is usually considered a desirable microstructure did not insure the highest mechanical test values as given by the static tension and the Charpy impact test, the microstructure being an example, for these values were low for this rail. It was concluded that apparently other factors than microstructures are involved in any explanation of ductility and toughness.

Toughness Tests Were Made

Rail failures from spalling or chipping out of metal near the rail end are met with in service. In many cases, the cause of such failures has been charged to embrittlement of the metal on the running surface of the rail by the cold working of traffic. The opinion has often been expressed that such failures occur more often during cold weather. This has raised the question whether such failures were encountered previous to the comparatively recent widespread use of end-hardened rails and whether heat treatment at the rail ends will affect the frequency of occurrence after the rails have been in service for some time. As no information was available on the effect of cold rolling on the toughness of either unhardened or hardened rail steel at normal or subnormal temperatures, laboratory tests were undertaken to obtain such data. The rails rolled previously for batter measurement provided the material from which to obtain test specimens, including both the 112 and the 131-lb. sections, and rails end-hardened by four processes. Tests were made at plus 70 deg. F., and at zero temperature. The tests showed that the rail not rolled and not end-hardened was the material most affected by lowering the testing temperature from 70 deg. to zero; conversely, the rolled end-hardened material was least affected by temperature change. In fact, with the exception of rail end-hardened by process No. 6, an increase in toughness was noted with the decrease in temperature of testing. Why this increase in toughness should be obtained is not readily explainable and it is proposed to make additional tests to permit the checking of the results already obtained.

The significant point to be obtained from these data is that the end-hardened material that has been cold rolled by the passing traffic showed relative high toughness when tested at either 70 deg. or zero. While no direct comparison can be drawn between the end-hardened material not cold rolled and the end-hardened material cold rolled, the residual toughness after rolling is still high and is well above that developed by the unhardened rail.

Failures in Test Rails

As in previous years, detector cars have been run over the A. R. E. A. test rail in service. During the annual inspection of the Baltimore & Ohio in 1939, 11 failed rails were located, 10 of which were marked for removal. The eleventh rail, not removed, is the same rail which was located in a previous test and marked to be watched by the section gang. It contained a horizontal split head which has not grown in size very much during the year. As found, the defects consisted of 6 internal transverse fissures, 1 horizontal split head, 2 vertical split heads and 2 progressive fractures, both of the latter having originated at spots burned by slipping locomotive drivers. In addition, 2 rails failed in service during the year from transverse fissures.

The test rails on the Baltimore & Ohio were rolled in 1931 and 1932. They were cooled on the hot bed and put in service in 1932. The cumulative record of the test rail failures of this road show that 39 rails have

failed out of a total of 5,343 laid. These failures are divided as follows: internal transverse fissures, 27; horizontal split heads, 5; vertical split heads, 5; progressive fractures, 2. These rails were laid on various districts and have carried from 50,000,000 to 125,000,000 tons since they were placed in service.

Test rails were laid in 1932 on the cut-off of the Atchison, Topeka & Santa Fe between Eldorado, Kan. and Ellinor, this being a single track carrying freight only. Up to January 1, 1940, this rail had carried 103,317,000 tons. These rails have been tested at least once a year by means of a company-owned detector car but no defects have been found on any of the tests. The cumulative record shows, however, that 35 rails have been removed, of which 24 were curve worn, 2 were kinked, 5 were stock rails and 4 were removed because of crushed heads.

Practitioners Defend I.C.C. Procedure

THE suggestion in a monograph on the administrative procedure of the Interstate Commerce Commission, which was prepared for the Attorney General's Committee on Administrative Procedure, to the effect that the court room pattern of procedure in general rate level investigations might well be superseded by the legislative or investigative technique which is practiced by congressional committees was sharply criticized by C. A. Miller, vice-president and general counsel of the American Short Line Railroad Association, and chairman of the Committee on Uniformity of Procedure before Federal Administrative Tribunals of the Association of I. C. C. Practitioners, and J. Carter Fort, general solicitor of the Association of American Railroads, when the Attorney General's committee held hearings on the monograph on July 11.

Mr. Miller condemned the legislative technique of conducting hearings, calling it the "way they do things in Russia and in Germany"; while Mr. Fort told the committee, which is composed of Dean C. Acheson, chairman and a member of the Washington, D. C. bar; Ralph F. Fuchs, professor of law at Washington University, St. Louis; and Arthur T. Vanderbilt, past president of the American Bar Association, that his organization "looks with great apprehension on any attempt to limit the safeguards of a full hearing before the commission."

[Briefly, it may be explained that the legislative or investigative technique which is currently employed by congressional committees, involves many features not common to the court room procedure which is, to a certain extent, employed by the commission. In the first place, under the legislative procedure, the witnesses appear by the grace of the committee rather than as a legal right under the law. Also, there is no cross examination, thus permitting a loquacious witness to extend himself without any fear of having to substantiate his statements under the cross fire of an opposing counsel. Another difference in the two procedures lies in the disposition of a legislative committee, if it be an investigating committee rather than one holding hearings on a bill, to begin the investigation with a fixed premise or theory and to try to fit the facts elicited from witnesses and records to the theory rather than accepting all the testimony and reaching a conclusion after a full hearing. This practice may be carried so far as to accept only that testimony which helps the case of the investigators and to reject

damaging evidence. This type of procedure is sharply contrasted with that employed by the commission where all who have a right to, may appear and present their cases under cross examination, with the commission reaching a conclusion after the record has been completed.]

Before launching his attack against the philosophy of the monograph, Mr. Miller pointed out to the committee that the commission is the pioneer of the federal regulatory administrative agencies. It has been in existence, he said, for more than 53 years; and has achieved a place and a reputation that is well known to everyone.

"It is without doubt," he continued, "preeminent in the field of administrative law. There are a number of reasons for its success. First, and foremost, has been the personnel of its membership and of its staff. Its political independence, and its ability to control attempted interference of legislators as well as the Executive branch of the government have contributed much to its success. But the keystone of its success has been its desire throughout the years to reach just conclusions within the law."

Mr. Miller then pointed out that the monograph bears out the statement that the commission's procedure has always been designed so as to accord a full and fair hearing and to accord "what has lately been called the rudimentary requirements of fair play, regardless of whether required by the statutes in so many words." As a result of this procedure, he asserted, the commission is exempt from the Walter-Logan bill, which would permit judicial review of administrative decisions.

At the beginning of his discussion of the monograph's suggestion as to the change in procedure, Mr. Miller quoted the language in question from the monograph which follows:

"Despite the striking diversity of purposes of investigation, the procedural methods employed are all very much the same. The pattern followed is that of the court room. The commission apparently has not discovered—or has rejected—the advantages which flow from attitudes which predominate in the legislative investigation. Whenever any kind of an order, legislative or judicial, is contemplated, the commission's hearings are always for the purpose of making a record on which the order may be dated; the hearing apparently is never regarded as but one useful device among many for getting information which will guide a future course of action."

"It is in this connection, coupled with what has immediately preceded," declared Mr. Miller, "that we find the most disturbing features of the monograph. Here, the monograph, like many of the other monographs, deprecates the formal hearing process in favor of the so-called investigative technique. Here, we probably come into headlong conflict with respect to philosophies. The monographs generally maintain the philosophy of the preferability of the investigative technique, and rather consistently recommend against the so-called court room pattern, or court room atmosphere. They seem to prefer the atmosphere of the congressional committee room, where those witnesses are heard whom the committee pleases to hear, and where those questions are asked which the committee pleases to ask. Such proceedings are not full hearings in any legal sense, nor are they full hearings in fact. They do not even accord the form of a full hearing."

"A full hearing," he continued, "is one in which the affected parties are permitted to present their cases in consonance with recognized judicial principles. We perceive in the monographs a tendency to apply totalitarian methods to administrative procedure. We take

sharp issue with that philosophy. Even though tremendously important private rights are at stake, the tendency of the monographs is to suggest that the hearing be conducted as the government agency wants to conduct it, with such witnesses called as the government wants to call, and with such questions asked as the government wants to ask."

"We say that this is not the American way. That is the way they do things in Russia and in Germany. When Congress provided for hearings in Interstate Commerce Commission cases, it did so because it realized that it was vesting tremendous powers in the commission—powers so important that the very existence of communities might depend on the commission's action. It was thought most important to give the public a full right to be heard, not in the manner that the commission may desire, but in the manner recognized by the courts. That is the basis of the commission's procedures."

In Mr. Miller's opinion, the issue in this case is a basic one—whether the pattern of evidence to be introduced at a hearing is to be a government pattern, or whether it is to be a pattern determined by court decision as to what constitutes a full hearing before an administrative agency. Continuing, he further pointed out that if the witnesses to be called are to be determined by the government, and if the course of the inquiry is to be determined by the government, and if those who are threatened with injury are told that they may not be heard, or that they may be heard only in the manner desired by the government and in line with its predetermined policy, then the proceeding will not constitute a full hearing. "There can be no surrender on this point," he declared. "As to that policy, we say 'It shall not pass.'"

Continuing his attack on the legislative procedure, Mr. Miller recalled that the Brownlow Committee (which, a couple of years ago, made a study of the reorganization of the executive departments for the President) suggested that certain of the powers of the commission, including its rate-making functions, should be transferred to the Executive branch of the government. "Nothing," he asserted, "could have been of more certain injury to the public. Nothing can be of more certain injury to the public than to deny the protection which the judicial process affords. If the public is to be protected, the commission must be independent and it must be divorced from the Administration."

He then quoted to the committee an excerpt from an article by John Foster Dulles in the American Bar Association Journal of April, 1939, in which the author wrote that "Those who serve the government generally become identified in spirit with its presumed goal. They loyally and often in the spirit of crusaders seek to advance its ends."

"The public does not want a hearing before crusaders, who have decided upon their goal in advance, and who have determined before the hearing what their decision will be," Mr. Miller told the committee. "The strength of the Interstate Commerce Commission lies in the fact that it has been judicially minded, and that it has patiently heard all parties whose rights might be affected. The monograph suggests that there is a waste of time in following the court room pattern. Much time is saved in Russia and in Germany by avoiding hearings. But that is not the kind of economy Americans want. That is not the kind of economy Americans will tolerate."

"We are told in the report of the Brownlow Committee that in 1930 the Food and Drug Administration issued a ruling that when corn sugar is used as a substitute for sugar in jams and jellies, the labels must

show that fact; but that the Secretary of Agriculture, apparently without hearing, under pressure from the refiners of corn sugar, reversed that ruling. Is it sound public policy to have such public matters handled in that manner?"

"The monograph finds no fault with the commission's court room pattern of procedures either as to time consumed or results obtained. In fact, it admits that good results are obtained. But, it suggests another procedure, without showing anything to be gained by the use of such procedure. We think that the methods now in use are the best designed to get at the real facts. We think the commission's procedure is made judicial in its nature both by statutes and by court decisions."

Turning to general observations on the monograph, Mr. Miller said that the practitioners do not concur in the suggestion that the personnel of the various regulatory commissions be selected by a board composed of personnel directors of the several departments or agencies. Rather, it is their view that the personnel should be selected under Civil Service rules with the affected agencies participating in the preparation of the questions and in the oral examinations. "That has worked well with the Interstate Commerce Commission, and we see no reason why it should not work well so far as other agencies are concerned."

The practitioners are in agreement with the recommendations to the effect that more adequate salaries should be paid. This, Mr. Miller said, applied not only to the commissioners, but also to their personnel. Mr. Miller also commented on the fact that of late years the House appropriations committee has been reducing the statutory salary of the commissioners from \$12,000 a year to \$10,000, saying that "We do not believe that Congress should reduce salaries by means of appropriation acts, and we have a distinct feeling that the Interstate Commerce Commissioners are very much underpaid. That same feeling applies to its personnel."

The monograph, at page 65, discusses the subject of findings of fact in the commission's decisions and alludes to the criticism, which, according to Mr. Miller, the practitioners have frequently expressed of the commission's procedure in this regard, saying that the practitioners are as much to blame as the commission, because they do not comply with the commission's rules in writ-

ing their briefs, in that they do not, as a general rule, make specific requests for specific findings of facts.

Mr. Miller went on to point out that the commission's decisions now, very generally, merely reflect the evidence, pointing out that one side contends so and so, and the other side contends so and so, but that they "fail to state which of these contentions the commission found to be correct, in so far as they relate to facts."

"What we criticize," declared Mr. Miller, "is the failure of the commission to state definitely its conclusions of fact from the disputed facts in issue. We are not so much concerned with formalism as we are with substance. We do not believe, however, that the rules should be harshly or strictly enforced. Nor, do we believe that the commission can shift its responsibility to the practitioners. That there should be whole-hearted cooperation along this line is readily conceded. Briefs are supposedly written in order to persuade the commission to decide in favor of the client of the writer. If they fail to do so, sanctions enough are imposed. No rule will make a good lawyer or a good brief writer."

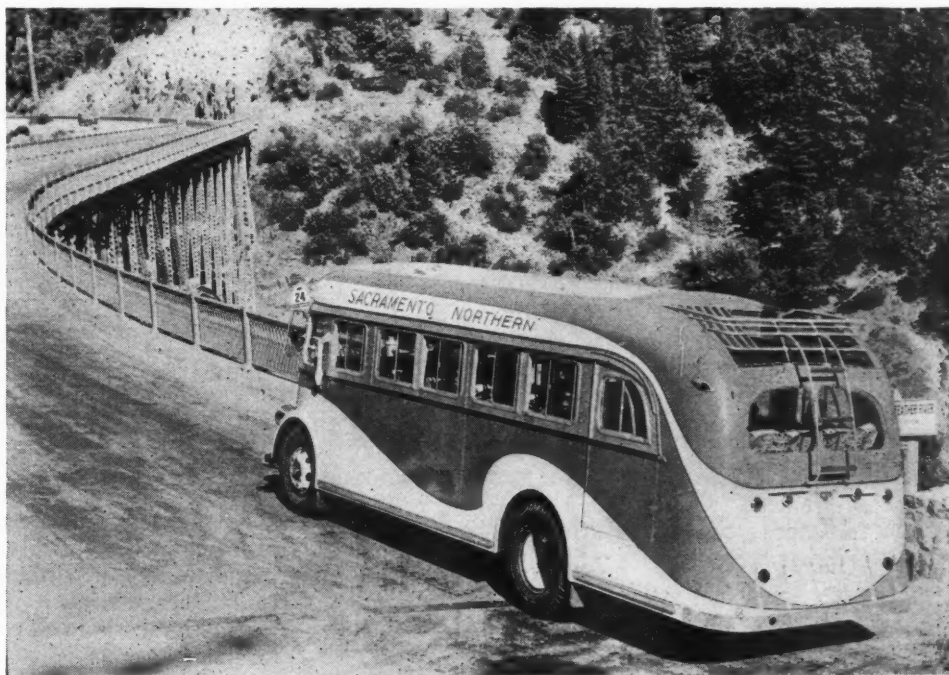
Before beginning his extemporaneous remarks, Mr. Fort asked and obtained permission for the various railroad general counsels to file briefs on the monograph later in the proceedings. He praised the commission for its fairness in conducting all kinds of cases and objected to the monograph's position that cross examination should be prohibited in general rate level investigations.

Cross examination, said Mr. Fort, is "very important." It was his thought, after many years of practice before the commission and the courts, that the virtue in cross examination lay in the fact that it made the witness carefully consider his testimony and tended to minimize loose statements.

The only virtue of the legislative technique, he continued, is that it is based on expediency and the necessity for getting something done within a limited time. He felt that it had few of the attributes of justice. He admitted that it has a certain plausibility until it is confronted with the problems before the commission; then it pales before the bright light of reality. He closed his remarks by urging the committee to reject any recommendation of the legislative process for the commission.

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One of the Sacramento Northern Buses that Traverse the Scenic Feather River Canyon in Rail-Highway Co-Ordinated Service



Suggestions for the Improvement of Steam Locomotives*

Locomotives are often built and maintained in kind for their service life, whereas, at little additional cost, they might be renewed to modern design and proportions

By J. L. Ryan

Mechanical Engineer, St. Louis-San Francisco

THE demand for faster service, longer runs and high mileage on the railroads has left almost all of them with many locomotives which are not adapted to meet such requirements. In other words, the horsepower demand cannot be met. Many of these locomotives may be improved for faster and more sustained service by making changes which will not incur a great deal of expense.

Degree of Obsolescence of Nation's Motive Power

In attempting to approximate the extent to which our road-service steam motive power may be considered modern, the author uses as an example the locomotives of the St. L.-S. F. which is considered an average-size

Table I—Period of Building Locomotives of the St. Louis-San Francisco Railway

	Horsepower rating	Percentage of total
1935 and later	132700	12.0
1930 and later	220700	20.0
1923 and later	543200	49.5
1919 (U. S. R. A.) and later.....	623500	56.7

railroad. Out of an ownership of 610 locomotives, 425 or 70 per cent are assigned to road service. In view of the speeding up of freight and passenger schedules, the horsepower rating of locomotives is a better yardstick to apply than the rated tractive force which is so frequently used. Thus, using Cole's values for cylinder-horsepower rating for locomotives built prior to 1920 and the railway company's test results for those built in 1920 and later, the 425 locomotives having road assignment have a rating of 1,096,100 hp., an average of 2,579 hp. each. Table I indicates the periods in which certain of these locomotives have been built.

Of the locomotives producing 220,700 hp. built or rebuilt in 1930 and later, only 132,700 hp., or 12 per cent of the total considered, fully meet the transportation department's operating requirements and have the desired proportions for economy of operation and maintenance. There are 31 locomotives included in this 12 per cent, having an average rating of 4,300 hp. Numerically, these locomotives are 7.3 per cent of the total having road-service assignment.

Now considering the railroads as a whole, we find that, in 1939, reports were filed for 45,965 steam locomotives. Should the road-service ratio of 70 per cent be applied to

the 45,965 steam locomotives reported in order to arrive at the approximate number having road assignment, we would have a total of 32,175.

The record of purchases of steam locomotives for service in the United States 1934 to 1939, inclusive, is given in Table II. Numerically, the 699 steam locomotives listed in Table II, purchased for road service, constitute only 2.2 per cent of the 32,175 steam locomotives considered as having assignment to this service. These new locomotives have approximately double the rated horsepower capacity of the average of the total and accumulate mileage at rates two to three times that of the average. On this basis, they should account for 10 to 15 per cent of the transportation movement. This leaves 85 to 90 per cent of the movement being handled by locomotives built prior to 1934. A number of the freight locomotives, built in the period 1928 to 1931, were proportioned to meet present operating requirements; the majority, however, while having good boiler proportions and good steam distribution, continued with wheel diameters which are a handicap today.

Returning to the figures on the locomotive ownership of the St. L.-S. F., it will be observed that, of the 1,096,100 rated horsepower, representing the total capacity of the 425 locomotives assigned to road service, locomotives having 12 per cent of the rated total are considered modern, while locomotives accounting for 44.7 per cent of the rated total were built commencing with the U. S. R. A. period and from then on to the time when those having modern operating proportions were constructed.

With the groups of locomotives in mind which will fall within the period of construction of the 44.7 per cent

Table II—Steam Locomotive Purchases; 1934-1939

Construction orders placed	Service	
	Road	Yard
1934	63	9
1935	17	11
1936	349	84
1937	149	27
1938	33	2
1939	88	2
Total	699	135

mentioned, it is suggested that studies similar to the following be undertaken with the object of making maintenance replacements as nearly according to modern proportions as possible in preference to the "as-built" proportions. Regardless of our opinions with respect to the economical retirement age of equipment, these locomotives will, in all probability, be continued in service for many years.

* Abstract of a paper presented at a session of the Railroad Division at the Semi-annual meeting of the American Society of Mechanical Engineers, Milwaukee, Wis., June 17-20, 1940.

In some instances at no additional cost, and in many instances at a nominal additional cost, distinct improvements may be effected in the capacity and economy of locomotives by the reportioning of parts which are subject to renewal from time to time through the routine of maintenance.

Boiler Proportions Which Should Be Examined

The boiler is an excellent starting point when reviewing the design and proportions of a locomotive for possible improvement.

Many of the boilers designed in the days of drag service have inadequate steam space for the high steam-release rate obtained under present operating conditions. When a new firebox is applied, this condition can be readily corrected. The lowering of the crown sheet 3 in. will increase the volume of the steam space 20 to 25 per cent. This is frequently sufficient to transform a poor water-carrying boiler into a good performer. When this is effected, the results are: (a) better performance on line of road; (b) higher superheat temperature; (c) reduction in maintenance of valves, pistons and superheater units.

Locomotives designed for operation on heavy-grade lines and having permanent reassignment where only

tioning of some boilers having combustion chambers with the water space around the chambers greater than is now required for good practice. The area of the back tube sheet is generally the limiting factor in the tube application to these locomotives. A reduction of the water space around the combustion chamber when applying a new firebox could be capitalized upon through the application of additional boiler tubes.

Boiler-Tube-Sheet Layout and Superheat

With the results at hand on the improved cylinder performance of modern and semi-modern locomotives, a high percentage of which is attributable to steam-chest temperatures of 700 to 750 deg. F. when we apply new tube sheets in the course of maintenance, the reportioning of the tube layout to provide high steam-chest temperatures offers an excellent opportunity for increased capacity and economy.

The tube-sheet layout of the U. S. R. A. locomotives is proportioned so that the 5½-in. flues will have a gas area of 45 to 46 per cent of the total gas area through the boiler. Such a proportion with the Type A superheater gives a steam temperature approximately 100 deg. F. below that desired in today's operation.

Table III shows the tube-and-flue application with

Table III—Possible Tube and Flue Applications on U. S. R. A. 2-8-2 B Type Locomotive Without Change in Dimensions of Back Tube Sheet

Superheater type.....	A	HA or equivalent	A	E
Superheater flue layout.....	5 × 9 (as built)	6 × 9	6 × 10
Distance over tube sheets, ft.....	19	19	19	18
Number of 5½-in. flues.....	45	54	58	201-3½
Number of 2¼-in. tubes.....	247	217	196	62-2¼
Vertical pitch of 5½-in. flues, in.....	6½	6½	6½	4.22 (mean pitch)
Pitch of 2¼-in. tubes, in.....	3	2½	2½	3
Heating surface of flues, sq. ft.....	1226	1471	1580	3298
Heating surface of tubes, sq. ft.....	2752	2418	2184	697
Total heating surface, tubes and flues, sq. ft.....	3978	3889	3764	3995
Superheater heating surface, sq. ft.....	993	1742	1280	1920
Steam area through superheater, sq. in.....	51.3	61.6	66.1	71.92
Net gas area through boiler, sq. in.....	1414	1447	1438	1427
Net gas area through 5½-in. flues, per cent.....	45.1	52.9	57.2	710-730
Approximate temperature range of steam in branch pipe, deg. F. at high work rate.....	630-640	HA 710-730	700-720	710-730
Maximum evaporation, tubes and flues (Cole's values).....	37984	37125	36175	39320
Maximum evaporation, including firebox heating surface (Cole's values).....	54809	54010	53060	56205

light-grade lines are encountered, should be checked for the lowest reading of the water glass relative to the highest point of the crown sheet and for the visible length of the water glass used. A gain of 15 to 20 per cent in steam space is at times possible by a slight lowering of the water glass and reduction in its visible length, maintaining the same degree of safety in operation on the light-grade line as prevailed on the heavy-grade line for which the locomotives were built.

The gas area through the barrel of the boiler is one of the all-important details which should be checked in order to provide the maximum attainable. In the design of locomotives constructed in the period 1919 to 1930, some railroads incorporated practices in the spacing of tubes which, today, are recognized as not being consistent with spacing that may be followed with good results, water treatment and welded flues affecting this permissible change.

A case in point was the building some years ago of 50 2-8-2 locomotives by a certain railroad, following in detail the boiler dimensions of the U. S. R. A. 2-8-2 B type, except for the layout of the tube sheets. The latter type had 45 flues 5½ in. in diameter and 247 tubes 2¼ in. in diameter. The 50 locomotives of the 2-8-2 type mentioned have 45 flues 5½ in. in diameter and 219 tubes 2¼ in. in diameter.

A kindred condition can also be found in the propor-

resulting proportions for the U. S. R. A. 2-8-2 B type locomotive as built, as well as a number of possible applications without requiring any change in the crown height or water space around the combustion chamber. The order of application to attain increased capacity, as well as for fuel economy, would be as follows: (1)—Type E superheater; (2) a 6-in. by 9-in. layout of 5½-in. flues with the application of Type HA superheater units or their equipment; (3) a 6-in. by 10-in. layout of 5½-in. flues with the top corner flues omitted; application of 58 Type A superheater units.

Increasing the capacity of the superheater effects a material gain in addition to that of reducing the steam rate per unit of work, since the increased number of units reduces the pressure drop, which at a high work rate is equivalent to a substantial increase in the boiler pressure.

Table IV contains examples of reportioning the superheater application on two classes of locomotives by the St. L.-S. F.

Effect of Valve Events on Locomotive Operation

As important as the proportioning of the boiler and the superheater are the valve events upon the operation of a locomotive. Classes should be checked having in mind today's assignment. A 4-6-2 type built to handle

Table IV—Examples of Reproportioned Tube-Sheet Layout By St. Louis-San Francisco Railway

	Example No. 1			Example No. 2	
	As built	Reproportioned	Reproportioned	As built	Reproportioned
Superheater type.....	A	A	HA	A	A
Superheater flue layout.....	5 × 9	7 × 9	6 × 9	5 × 8	6 × 8
Combustion chamber—with or none.....	With	With	With	None	None
Back tube sheet altered.....	..	No	No	..	Crown sheet lowered 3 in.
Distance over tube sheets, ft.-in.	22-0	22-0	20-0	21-0	20-11
Number of 5½-in. flues.....	45	63	54	38	48
Number of 2¼-in. tubes.....	251	211	242	225	176
Vertical pitch of 5½-in. flues, in.....	6¼	6½	6½	6½	6½
Pitch of 2¼-in. tubes, in.....	3½	3½	3½	3½	3½
Heating surface of flues, sq. ft.....	1420	1988	1548	1144	1440
Heating surface of tubes, sq. ft.....	3240	2724	2839	2772	2160
Total heating surface, tubes and flues, sq. ft.....	4660	4712	4387	3916	3600
Superheater heating surface, sq. ft.....	1233	1726	1834	978	1235
Steam area through superheater, sq. in.....	51.3	71.8	61.6	43.3	54.7
Net gas area through boiler, sq. in.....	1426	1556	1500	1245	1233
Net gas area through 5½-in. flues, per cent.....	44.7	57.4	49.3	43.3	55.2
Temperature range of steam in branch pipe, deg. F., at high work rate.....	590-620	690-710	†690-720	..	680-700
Maximum evaporation, tubes and flues (Cole's values).....	41,610	42,220	41,370	36,010	33,170

†Combustion chamber lengthened and syphon applied. Firebox heating surface increased 18.3 per cent.

the heavy trains of another period with valves having 1- to 1½-in. steam lap, should not be assigned to light, high-speed trains without altering the valves and valve gear to provide events to suit. Locomotives of the 2-8-2 type designed in the days of drag service may be found operating on near passenger schedules and with practically the original restricted steam ports and valve events. This necessarily results in loss of power and fuel.

Classes which are receiving the application of new cylinders should have the diameter of the valve, area of the exhaust channels, and the steam ports carefully examined. They should be proportioned to meet today's requirements. Only a few locomotives need be involved to justify the cost of a new cylinder pattern, should it be required, in order to obtain the desired proportions.

Considering the fact that locomotives in freight service are rated today on their power output at piston speeds of 1,200 to 1,400 ft. per min., instead of on their initial tractive force, the responsibility devolves upon the mechanical engineers at least to point out the potential power increases which may be effected through moderate changes. At the time of heavy shopping, a valve gear, providing drag-service events, can be replaced with a gear providing modern events, often at slight cost over that which would be involved in maintaining the original in kind.

Table V, examples Nos. 1 and 2, are instances of altering the valve gears to meet changed assignments and operating conditions. In both cases the originals were for passenger service with running speeds of 55 to 60 m. p. h. The alterations were made to provide valve events to accommodate an economical cruising speed of 70 to 75 m. p. h., with occasional top speeds of 80 to 85 m. p. h.

What proportions and valve events should be provided to meet today's operating requirements most satisfactorily? The locomotives which we are considering are those built from 1919 to 1930, the majority having work-

ing pressures within the range of 200 to 250 lb. per sq. in.

The problem is to provide the highest possible mean effective pressure at piston speeds of 1,200 ft. per min. and higher. Indicator cards were shown as examples of the increase in mean effective pressure and power which may be effected by long steam lap. By increasing the steam lap of a 2-8-2 type locomotive from 1¼ in. to 2½ in. and increasing the width of port from 1⅝ in. to 2⅜ in., the power was increased about one third at approximately 35 per cent cut-off and over one fifth at about 50 per cent cut-off, the locomotive operating at piston speeds close to 1,000 ft. per min. in each case. Indicator cards were taken from the 2-8-2 type freight locomotives shown under Example No. 3 in Table V at piston speeds of 1,041 and 1,016 ft. per min. and a cut-off of 38 and 52 per cent, respectively. At 237 lb. boiler pressure in each case, the mean effective pressures at the head end were 91.3 and 111.5 lb. per sq. in., and at the crank end 92.3 and 115.0 lb. per sq. in. The total engine horsepower developed was 3,258 and 3,920.

With today's piston speeds of 1,200 to 1,600 ft. per min., it is doubly important that the inflow and outflow of steam be as unrestricted as is practicable. The use of valves of a diameter which may be considered large need not incur excessive weight. Lightweight built-up valves using gas pipe with a wall thickness of ⅜ in. and steel castings having ¼-in. section have been standard practice with the St. L.-S. F. for seven years.

Boiler Pressure

In the light of the excellent on-line-of-road operation which has been obtained from locomotives of recent construction with working pressures within the higher pressure range, one might be inclined to the thought that the 200 to 225 lb. per sq. in. working pressure to which many of the locomotives built in the 1919 to 1929 period are limited, presents an extreme handicap to one at-

Table V—Comparison of Change in Valve Events Made By the St. Louis-San Francisco to Meet Altered Operating Requirements With Examples of Recent Construction

	Example No. 1		Example No. 2		Example No. 3	
	Original	As altered	Original	As altered	Recent construction	4-8-2
Locomotive type.....	4-6-2	4-6-2	4-6-2	4-6-4	2-8-2	4-8-2
Class of service.....	Passenger	Light fast passenger	Heavy passenger	Conversion, heavy fast passenger	Freight	Freight
Boiler pressure lb. per sq. in.....	200	200	210	225	235	210
Cylinders, diameter and stroke, in.....	24 × 28	24 × 28	26 × 28	26 × 28	27 × 32	29 × 32
Drivers, diameter, in.....	69	73	74	74	64	70
Valves, diameter, in.....	13	13	13	13	14	15
Maximum travel, in.....	7½	7½	6½	7½	8½	8½
Steam lap, in.....	1¼	1½	1	1½	1½	1½
Lead, in.....	¼	¾	¼	¾	¾	¾
Exhaust clearance, in.....	¼	¾	¼	¾	0	0
Maximum cutoff, per cent.....	..	82	..	79	77	76

tempting to provide increased economy and power with which to meet today's operating requirements.

From the economy viewpoint, some encouragement may be obtained from a review of the design of the recently built high-pressure locomotives. The adoption of the higher working pressures without modification of design to provide for increased ratio of expansion does not admit of the increase in thermal efficiency of the engine which is ordinarily considered a result of the use of the higher pressure. The decrease in the differential between the two is particularly true where a heavy work rate with reduced ratio of expansion is involved, the locomotives in both pressure ranges working at approximately the same cut-off or with the same ratio of expansion.

High pressure is forced at times where high piston thrust is required, and the cylinder diameter must be limited to keep within clearance limits. There is no denying that high pressure gives an engine a "smartness" of response; however, from the standpoint of capacity and for operation within the present operating requirements of high-speed freight service, much may be accomplished with working pressures of 200 to 225 lb. per sq. in. An example of this is where the two groups of 4-8-2 type locomotives listed in example No. 3 of Table V are in a pool. The steaming capacity of the locomotives in the two groups is approximately the same. The 250-lb. locomotives have 54 Type HA superheater units with 61.6 sq. in. of steam area through them. The size of the valves, events, etc., are given in Table V.

When it was decided to condition the group of locomotives having 210 lb. per sq. in. to work in a pool with the 250-lb. locomotives, the 5½-in. flues were increased from 45 to 63, with a resulting increase in steam area through the superheater units from 51.3 to 71.8 sq. in.; the dry pipe and branch pipes were increased to suit; 29-in. cylinders having 13-in. valves were replaced with 29-in. cylinders having 15-in. valves; valve gears providing 6½-in. maximum travel were replaced with gears providing 8½-in. maximum travel; valves having 1-in. steam lap were replaced with valves having 1½-in. steam lap. There is some difference in the response of the two groups, so far as the enginemen are concerned, but none, so far as the dispatchers are concerned, both handling the same tonnage on the same schedules.

Steaming Capacity—Value of Feedwater Heating

When treating the subject of providing the maximum possible capacity in existing steam locomotives, the steaming capacity which may be added to the boiler at high work rates by the application of feedwater-heating equipment, utilizing exhaust steam, should be analyzed and a distinction made between the percentage of return on the investment and the percentage increase in power; also that a net 10 per cent increase in boiler capacity is 12 to 13 per cent at the drawbar.

Conclusion

The groups of locomotives that were built in the years 1919 to 1930 offer in general, a fertile field for a substantial addition to the work-rate capacity of our locomotives through the adoption of a policy of providing proportions to give a high degree of superheat, low pressure drop from boiler to steam chest, and valve events to conform with present-day operating requirements, these changes building up the mean effective pressure at the higher work rates without increasing the maximum stress in frames, driving axles, crankpins, rods, etc.

Express Employees Demand 44-Hour Week

AS announced briefly in last week's *Railway Age*, on June 10, two days before a strike of employees of Railway Express Agency called for 5 A. M., July 12, by the Brotherhood of Railway Clerks, President Roosevelt postponed such action at least 60 days by issuing a proclamation creating an Emergency Board under the Railway Labor Act to investigate and report on the disputes which gave rise to the strike call. The disagreement arose out of the demands by the Clerks' Brotherhood for a 44-hour week for all employees and various changes in the rules agreement, and proposals of the management for other changes in the rules agreement.

The Emergency Board appointed by the President comprises: Professor Henry A. Millis, University of Chicago; Professor Dexter M. Keezer, President of Reed College, Portland, Oregon; and Hon. John P. Devaney, former Chief Justice of the Minnesota State Supreme Court. All of these board members have served heretofore on emergency boards, Professor Millis being on the 1938 board which reported adversely on the proposed decrease in railway wages.

The dispute had its inception in the granting of a 44-hour week in the fall of 1938 to New York City teamsters, following a strike of the International Brotherhood of Teamsters in that city. This made the 44-hour week standard for all such men, with the exception of express drivers who were working under a 48-hour agreement. When this agreement expired—January 1, 1939—the Teamsters' Brotherhood demanded increased wages and shorter working hours for express drivers in its membership in the New York area. The 44-hour week was granted by the express management, since its drivers were the only group in the city that remained on a 48-hour basis and because it became evident that refusal to do so would precipitate a walk-out. The change became effective for Railway Express Agency drivers in New York on May 11, 1939.

Shortly thereafter, the Teamsters' Brotherhood cancelled its national agreement with the Express Agency and demanded that express drivers in its membership in seven other large metropolitan cities be granted a 42-hour week and a 15 per cent wage increase, as well as certain changes in the rules of the working agreement between the parties. After prolonged negotiation, the Agency settled the rules dispute but could not reach an agreement on the 42-hour week and the 15 per cent pay increase proposals. Finally the Teamsters agreed to mediate these two demands. Mediation was unsuccessful and finally an agreement to arbitrate was reached.

The arbitration agreement was signed because it was felt such action was necessary to avoid a strike. After the arbitration agreement was executed but before actual arbitration began, further discussions with Teamsters' representatives were had and the latter's demands were finally compromised by giving a 44-hour week to express chauffeurs in the other cities where the International Brotherhood of Teamsters represents Express Agency vehicle employees—i. e., Chicago, Philadelphia, Newark, Cleveland, Cincinnati, St. Louis and San Francisco—and the demand for the 15 per cent increase in pay was withdrawn.

The Brotherhood of Railway Clerks thereupon made a demand upon the Agency for a 44-hour week for all express employees represented by it throughout the United States covering some 35,000 men, including

(Continued on page 113)

Union Lawyer Defends Chi. Board

Mulholland replies to Dickinson's charges in brief filed with the Attorney General's Committee on Administrative Procedure

WASHINGTON, D. C.

THE Railway Labor Executives Association, in a memorandum filed with the Attorney General's Committee on Administrative Procedure by its attorney, Frank L. Mulholland, takes sharp issue with the views of the railroads on the subject of the National Railroad Adjustment Board as expressed by John Dickinson, general solicitor of the Pennsylvania, when he testified before the Attorney General's committee on June 26, details of which were outlined in the *Railway Age* of June 29, page 1185. At that time Mr. Dickinson made a sweeping indictment of the board's philosophies and procedure, charging that its decisions were "arbitrary, unjust and unlawful" and that its procedure has "bogged down" and has done "nothing to expedite common sense decisions."

The Attorney General's committee is making a comprehensive study of the administrative procedure of the various federal regulatory agencies, and it held hearings on June 26 on the monograph prepared for it on the subject of "Railway Labor," which included the Railroad Retirement Board, the National Railroad Adjustment Board and the National Mediation Board. At that time, after the completion of Mr. Dickinson's testimony, Mr. Mulholland asked and was granted permission to file a brief outlining the views of the railway labor unions. This, he did on July 11.

Says Board Is "Unique" Organization

After pointing out that the board is a unique organization and that it has no exact prototype among administrative bodies, Mr. Mulholland warns the committee that throughout its deliberations the social importance of the board must be kept in mind. "It represents," he writes, "a significant extension of the institution of collective bargaining. Like all phases of the collective bargaining process it must depend for its ultimate success upon the desire of the parties to make it a success."

He then states that the Railway Labor Act contains no provision compelling employees to submit cases to the board, and no provision compelling carriers to accept and apply its awards, unless enforced through court action. It is his belief that the problems facing the board today cannot be solved by the mere adoption of a formula of procedure. On the other hand, he feels that procedural changes may do "incalculable" harm. If the employees are compelled to undergo all the formalities of an action at law in order to secure an award which is of questionable legal validity, because of the carrier's power to refuse to apply it unless compelled by court order, the result, in Mr. Mulholland's opinion, may well be a reluctance to invoke the board's jurisdiction at all, and the consequent failure of the statutory scheme.

(Mr. Dickinson had complained that the railroads have no right of judicial review of the board's decision for the reason that the employees refrain from taking the awards to court, and threaten a strike unless the carriers comply.)

The brief goes on to point out that the history of the United States Railroad Labor Board which existed from

1920 to 1926 followed much this same course and in later years its decisions were "openly flaunted by the carriers, and were eventually not sought by the employees."

Railway Labor "Ready to Cooperate"

"If there is inherent in the practices of this board any weakness liable to lead to substantial injustice," continues the brief, "Railroad Labor stands ready to cooperate in any sincere effort to eliminate that condition. It has already expressed that readiness by participating in comprehensive negotiations having as their purpose the perfection of the proceedings of the board. Any attempt, however, to impose upon this board a form of procedure which is alien to its origin and fundamental purpose, or which will rob it of its distinctive character, will destroy its value as a social agency."

This reference to the negotiations between railroad labor and the carriers has to do with a tentative agreement which is mentioned later in the brief which is designed to iron out some of the procedural difficulties now hampering the board's actions. As pointed out in the *Railway Age* of October 14, 1939, page 596, this tentative agreement provides that when direct negotiations between the highest designated officer of the carrier and the representatives of the organization on the property fail to settle a dispute, a complete statement of the dispute will be referred by the organization representative to the chief executive officer of the organization involved, to the end that further effort may be made to settle the dispute through conference, or to insure proper submission to the board.

Mr. Mulholland alleges in his brief that this tentative agreement may well solve many of the problems and answer many of the criticisms of Mr. Dickinson.

In answering Mr. Dickinson's argument that it is unfair to the carriers to deny them judicial review of the board's decisions, the brief reminds the committee that although the carriers cannot obtain judicial review on their own motion, yet the employee claimant, if he loses before the board, has no right of review at all. The statute, it says, gives him none and any constitutional right which he may be presumed to have has been held to be waived by his original invocation of administrative relief.

Cites Action of Congress

Turning to the objection of the carriers to the fact that there is no statute of limitations on the awards, the brief calls the committee's attention to the fact that at the time when the Railway Labor Act was adopted the carriers' representative, M. W. Clement, president of the Pennsylvania, appeared before the congressional committees and urged the adoption of a statutory limitation upon claims. This suggestion, it is said, was rejected by the Congress. "It appears to us," continues the brief, "that if any limitation is to be provided, this end must be obtained by statutory amendment, and not by the adoption of rules on the part of the board."

The discussion next turns to the carriers' "vitriolic" attack upon the substantive basis of certain decisions of the board. The writer of the memorandum does not want to enter into a detailed discussion of the cases which the carriers referred to in their brief, but he does want the committee to know the nature of the problem confronting the board in the interpretation and application of collective bargaining agreements presently existing between the railroads and their employees.

"Customarily such agreements are drawn without the assistance of legal counsel," says the brief. "They seldom follow the forms familiar to contract law. Their terminology is that of railroad men rather than that of attorneys. Individual agreements may be extremely definite in some particulars and extremely general in others. Few of them are complete in themselves. Much is left to inference. They are of mixed origin. Some terms are borrowed from former agreements between the same parties, some from other agreements negotiated by other parties. The origin of some phrases is probably unknown even to the parties using them."

"It is small wonder that such agreements have proven confusing to attorneys and courts alike. There is little judicial precedent to guide in their interpretation. Only in relation to a single feature—i. e., provisions regarding seniority—have they come before the courts, and the courts have mulled over this one problem for 20 years or more. . . . announced five distinct theories in connection with it, . . . indulged in vague and contradictory statements, and have not as yet developed any fundamental principles of interpretation and application."

Board Composed of Railroad Men

Referring to the remark of Mr. Dickinson's that the principles of the board have been plucked out of thin air, Mr. Mulholland wishes to remind the committee that the board is composed of railroad men with a background of technical knowledge and practical experience upon which to draw. The expectation that they would draw upon it was the reason for their selection in the first instance, according to Mr. Mulholland. The development of principles of interpretation on the part of the board was therefore an inevitable consequence of the formation of that tribunal, he says.

The brief-writer goes on to say that the carriers now insist that certain of these principles and certain of the results reached upon their application have been erroneous, and cases are cited accordingly. "We are somewhat astonished by the carriers' argument, not because it has found certain decided cases of the board upon which to rest unfavorable criticism, but because it has not found more of them," writes the R. L. E. A. counsel. "No tribunal, however obscure or august, has ever been exempt from the possibility of error. We fail to see, however, how any substantive mistake on the part of the board, if such mistakes have been committed, have any relevancy to the present discussion. No such mistake can be corrected by alterations in the board's procedure."

"If all seven of the carriers' suggestions as to rules were to be adopted as listed, no single substantive principle of interpretation developed by the board would be altered in the slightest."

The "Devotion" of the Mediation Board

"We cannot believe," the brief continues, "that the carriers were entirely unaware of this fact when their memorandum was prepared. The obvious intent of the carriers' whole argument is to seek to discredit the Na-

tional Railroad Adjustment Board and to picture it as an irresponsible body, running amuck through the railroad industry, literally 'seeking whom it may devour.' The cry is for rules—any rules which will impede this monster and restrain it from its course of destruction. We submit that this presentation is a bit grotesque considering the fact that the board is composed of responsible carrier and labor representatives, assisted by referees selected either by the members themselves, or appointed by another governmental tribunal, the National Mediation Board, whose ability and devotion to its duty have never been seriously questioned."

"We have endeavored to present above a more accurate impression of the board than that which the carriers would seek to leave with this committee. It is a unique body, entrusted with a unique task of great magnitude and importance. We believe that its members have honestly sought to discharge the duties imposed upon them according to principles recommended by their judgment and experience. Like all human agencies this body has experienced its problems and its difficulties."

"Most Acute" Problems Listed

The brief next lists what it calls the "most acute of the problems facing the board and those which have subjected it to the severest criticism." They are:

1. The great and ever-increasing number of cases pending before Division No. 1.
2. The question of providing adequate notice to carriers of the nature of claims filed with the board.
3. The question of the best available means of securing proof of disputed facts.
4. The question of whether notice should be given to employees who are not parties to a given dispute but who may be affected by any decision rendered by the board.

After reciting the general history of the Railway Labor Act and the idea of the Adjustment Board, the brief cites the tentative agreement which has been worked out by the carriers and railroad labor and which was referred to above. It is pointed out that the agreement has not as yet been submitted to or adopted by the parties but that it is the understanding of the writer that further consideration has been withheld pending the termination of the proceedings before the Attorney General's committee.

Recommends Adoption of Agreement

"We believe," says the brief, "that an agreement between the carriers and the unions, if executed, and sincerely applied, would do much toward eliminating the difficulties which plague the board. In addition to offering a solution to present problems, it provides a precedent for the solution of future ones if they develop. It grows out of the action of the parties themselves, and follows an established pattern for the adjustment of similar controversies, i. e., by collective agreement."

Answering the first criticism, Mr. Mulholland calls the committee's attention to the fact that the board, at present, is given statutory authority to divide itself into groups of two or more to conduct hearings. If this were done, he points out, the work of the first division could be successfully handled. The tentative agreement also provides that if the reference of cases to the chiefs of the labor organizations before filing and the division of the work of the board does not relieve the congestion, the joint standing committee of the carriers and the employees will consider other ways and means of adjusting the difficulty.

On the question of providing adequate notice to the

carriers of claims filed, the brief thinks that it is hardly conceivable that a dispute can have passed through all the preliminary stages required before submission to the board without both parties being fully aware of the nature of both the claim and defense. However, it states, the labor organizations are not adverse to any reasonable provision for notifying any carrier of the exact nature of the claim filed against it. Reference is made to item Third (E) of the proposed agreement, which provides for a complete exchange of statements of position and replies thereto between the parties prior to any submission of a dispute to the board.

On the question of the best available means of securing proof of disputed facts, the brief takes the position that the carriers would be unwilling to agree that hearings might be conducted only upon mutual agreement of the parties, for the employees generally do not desire them, and would probably not consent. Similarly, it points out, the matter could not be entrusted to the Division hearing the case for the board has, as a whole, already ruled against the granting of oral hearings. The only other alternative, it continues, and the one which the carriers must have intended, is that any carrier shall be granted such hearings as a matter of right upon application therefor.

Employees Oppose Oral Hearings

The employees, says Mr. Mulholland, definitely oppose such a proposal. They do not do this because they object to oral hearings, but from the belief that in this instance the extensive use of oral hearings by the board would destroy that body's effectiveness. "It is an open secret," according to the labor counsel, "that certain carriers are definitely hostile to the board and have refused to cooperate in any way in the matter of a reasonable facilitation of proceedings before it. Every case has some undisputed facts, and in most Adjustment Board cases none of the facts are disputed, yet the carriers in question have consistently declined to participate in any joint submission or joint statement of facts in any case where they are involved. If these carriers were permitted to secure an oral hearing upon request, we have every reason to believe that they would exercise that right in every one of their cases for the sole purpose of embarrassing the board. It is well known that the board has no staff adequate for the conduct of numerous hearings. Its continued operation, therefore, could easily be made impossible by requests for oral hearings in any considerable number."

After pointing out that there is a dilemma inherent in the situation in that in one case no procedure can be considered satisfactory if it compels decision to be made without adequate knowledge of facts, while in the other the adoption of a rule requiring oral hearings on motion by a carrier will completely "ham-string" the board, the brief goes on to say that "If carriers and employees alike will pledge themselves that in every case a bona fide effort will be made to agree upon a joint statement of facts, such statements, plus records of hearings conducted on the property in discipline cases, plus any supplemental documentary evidence which the parties care to present, will, in the vast majority of cases fully inform the board as to the facts."

"If there remains still a problem of fact determination in a few cases, that situation can be corrected by further rules agreeable to the parties. It is our firm opinion, however, that any rules which may be adopted regarding hearings must be supplemental to, not substitutes for, basic agreements of the parties honestly applied. If such agreements come into being supported by collective polic-

ing of the carriers and the employees' organizations, a foundation is laid without which no rules as to hearings, however well devised, can have a real opportunity of success." Attention is then directed to the fact that the proposed agreement shows that the parties are fully aware of this whole situation and have already made the initial move toward its correction.

Fourth Question "Overrated"

Turning lastly to the fourth question of whether notice should be given to employees who are not parties to a given dispute but who may be affected by any decision rendered by the board, the brief thinks that it is highly overrated. It goes on to point out that out of more than 5,000 awards made by the board to date only two have been challenged by individual employees on the ground that they received no notice of the proceedings, and that these two cases involved a total of three workmen.

Since the tentative proposal does not include this subject, it is pointed out that the position of the railway labor organizations is that such employees are not entitled to notice either under the provisions of the Railway Labor Act or from any consideration of policy. Since the Act requires notices to all employees involved in disputes, the unions take the position that such employees are not parties to the dispute and are not involved in it in any way.

The brief closes by telling the committee that it might well use the tentative agreement as "an imperative indicator as to the course of its deliberations and possible recommendations." This agreement, concludes Mr. Mulholland, "embodies all of the procedural modifications necessary to the continued functioning of this tribunal."

Commission Issues Final Frisco Plan

WASHINGTON, D. C.

A FINAL plan of reorganization for the St. Louis-San Francisco which would drastically reduce the total capitalization and fixed charges and entirely eliminate the equities of the preferred and common stockholders was promulgated by Division 4 of the Interstate Commerce Commission on July 12. Under the plan, which would become effective as of January 1, 1940, the total capitalization would be reduced from \$388,680,293 to \$240,000,004; while the fixed interest charges would be reduced from \$12,613,106 to \$3,000,117.

The final plan found that the equities of the holders of both the common and preferred stock have no value; and no provision was made for the stockholders in the plan, except the holders of 100 shares of preferred stock of the Kansas City, Fort Scott & Memphis, who are allotted par for par of new preferred stock of the new company. The same treatment was also accorded to the general creditors because of the lack of assets free of mortgage lien.

The plan further provides that the equipment trust obligations remain undisturbed; and that the new 30-year four per cent divisional mortgage bonds shall be distributed in exchange, par for par, to the holders of the two issues of Kansas City, Memphis & Birmingham bonds. Holders of the Kansas City, Memphis & Birmingham general mortgage bonds would receive, for each \$1,000 bond, \$1,000 of Birmingham division first lien bonds. The holders of the Kansas City, Memphis & Birmingham income bonds would get, for each \$1,000

bond, \$1,000 of Birmingham division second lien bonds. Interest at the coupon rate would be paid on the Kansas City, Memphis & Birmingham general mortgage bonds and income bonds to January 1, 1940; it is further provided that if interest is to be paid on either of such issues of bonds for any period after January 1, 1940, the Birmingham division bonds to be issued to the holders of such bonds shall bear interest from the date to which such interest shall have been paid.

Holders of the Kansas City, Fort Scott & Memphis bonds, prior lien bonds, and consolidated mortgage bonds outstanding would receive, for each \$1,000 amount thereof, approximately the following securities, no-par-value common stock being stated for the purposes of the last two columns at \$50 a share:

Outstanding issue	New first and general mortgage bonds	New second-mortgage income bonds	New preferred stock	New common stock (shares)	Total	Unsatisfied claim
Fort Scott bonds	\$614	\$382	\$254	...	\$1,250	...
Prior-lien bonds, series A	146	117	241	6.55	831	\$460
Prior-lien bonds, series B	154	124	255	6.92	879	485
Consolidated bonds, series A	169	122	195	3.39	656	663
Consolidated bonds, series B	185	133	213	3.70	716	724

The Reconstruction Finance Corporation, the bank creditors, and the Railroad Credit Corporation would receive the following securities:

	New first and general mortgage bonds	New second-mortgage income bonds	New preferred stock	New common stock (shares)
Reconstruction Finance Corporation	\$4,742,263	\$974,916	\$1,578,411	27,992.38
Chase National Bank ...	773,080	555,580	892,035	15,488.81
Guaranty Trust Company	288,738	207,503	333,166	5,784.92
Central Hanover Bank ..	115,495	83,002	133,266	2,313.98
Bankers Trust Co.	115,495	83,002	133,266	2,313.98
Mercantile Commerce Bank	115,495	83,002	133,266	2,313.98
First National Bank of St. Louis	115,495	83,002	133,266	2,313.98
Railroad Credit Corporation	3,691,060

Capital Structure of New Company

The following table shows the initial capital structure and interest requirements of the reorganized company:

Issue	Principal Amount	Annual Requirement
Undisturbed equipment trusts, interest.....	\$5,874,000	\$207,664
Birmingham division 1st mtg. 4 per cent bonds due 1970:		
Interest	3,323,390	132,936
Sinking fund		16,617
Birmingham division 2nd mtg. 4 per cent bonds due 1970:		
Interest	3,182,780	127,311
Sinking fund		15,914
First and general mtg. 4 per cent bonds due 1990:		
Interest	63,305,149	2,532,206
Sinking fund		200,000
Total fixed interest debt.....	75,685,319	3,232,648
Capital fund		1,125,000
Second mtg. 4½ per cent income bonds due 2015:		
Interest	40,385,885	1,817,365
Sinking fund		201,929
Total debt	116,071,204	6,376,942
Preferred stock, 5 per cent.....	61,846,169	3,092,309
Total debt and preferred stock.....	177,917,373	9,469,251
Common stock	62,082,631
Total capitalization	240,000,004

The final plan provides that the reorganization committee shall be composed of not more than three persons, one to be designated by the prior lien bondholders' committee, one by the Kansas City, Fort Scott & Memphis bondholders' committee, and one by the consolidated mortgage bondholders' committee. They would be given the general supervision of carrying out the plan.

The board of directors of the reorganized company would consist of not less than 11 nor more than 17

members, who would be elected by the holders of the preferred stock and the common stock of the new company at an election to be held not later than 90 days after the consummation of the plan.

Provision was also made by Division 4 for the sale of the property at an upset price if the court should so order. At any such sale the property may be purchased by the reorganization committee or by any person nominated by the committee.

Express Employees Demand 44-Hour Week

(Continued from page 109)

vehicle, clerical, terminal and train employees and without reference to the size of the city or town or the working conditions in the communities in which they are employed. The organization also demanded certain changes in the working agreement between the Brotherhood and the Express Agency.

The suggested reduction in the work week from 48 to 44 hours the Agency estimated would increase its payroll cost by 5 to 6 per cent, or between four and four and a half million dollars a year, and the other changes demanded would greatly add to this estimated increased cost. The Agency proposed certain changes in the working agreement to relieve it of provisions which it believed unjustly burdensome. When no agreement could be reached between the parties involved, the Express Agency submitted the matter to the National Mediation Board.

The Express Company offered certain concessions, which were refused by the Clerks' union, which likewise declined to accept any of the changes in the working agreement asked by the Agency. Moreover the Brotherhood refused to modify in any way its original demands upon the Express Agency. The negotiations having failed in mediation, the National Mediation Board then made an offer of arbitration as provided by the Railway Labor Act.

The Express Agency immediately accepted this offer of arbitration, but the union declined to submit the dispute to arbitration and called a nation-wide strike of express employees.

The Agency notified the National Mediation Board of this situation and advised it that such a strike would interrupt interstate commerce to the extent of depriving the entire country of essential transportation service. The Express Agency called attention to the fact that it is engaged in transportation of a very substantial volume of shipments requiring the utmost expedition and the highest degree of care in transit, including perishable shipments such as fish, meat, fruit and vegetables, milk and cream, livestock, serum, medical and hospital supplies, parts and accessories used in the manufacture of airplanes, fire arms, ammunition and other articles essential to the proper preparation of the national defense.

"It has been and is the policy of the Express Agency to provide reasonable rules and working conditions for its employees and to negotiate changes in its working agreement in accordance with the provisions of the Railway Labor Act," according to an official statement of the Company. "It has pursued this course in this controversy. Mediation having failed, it has been and is willing to arbitrate the disputed questions, thereby avoiding any interruption of express transportation, which would inconvenience the public and would be particularly prejudicial to the public interest at this time of intensive preparation for national defense."

Hearings by the emergency board were scheduled to begin in Washington on July 19.



The Conductor in the Caboose Can Watch the Air Gage While Talking to the Engineman in the Locomotive Cab, Thus Facilitating Brake Tests



Train Communication Installed on the Bessemer & Lake Erie

Two-way telephone conversation between locomotives and cabooses of freight trains saves train time and improves safety

THE Bessemer & Lake Erie is now well started on a project of providing two-way telephone communication between enginemen in the locomotives and conductors in the cabooses of freight trains on the 128-mile double-track territory between Albion, Pa., and North Bessemer Yard (Pittsburgh). During the last ten years the Bessemer & Lake Erie has co-operated with the Union Switch & Signal Company in the development of this apparatus which uses neither direct wires nor ordinary radio, but is based on an entirely different principle, as will be explained later. Development apparatus has been in service on a locomotive and caboose for different periods ranging up to three years, and the complete system has now been perfected to meet railroad operating conditions.

This latest type of apparatus has been in service on one train for three years and on two trains for several months, and is demonstrating its usefulness in saving train time and improving safety. For these reasons, the system will, quite likely, be installed soon on the remaining locomotives and cabooses operated on this territory. With this communication system, two-way telephone

conversations, rather than whistle blasts and hand signals, are used to exchange information concerning the regular handling of trains as well as in cases of emergencies. Conversation can be carried on also between parties on two different trains on the same or other tracks of this railroad, the range of this service being from three to seven miles, and in some instances up to forty miles, depending on local conditions. In addition to the equipment on the locomotives and cabooses, a wayside station has been installed for demonstration, by means of which two-way telephone conversation is available between a wayside operator and the enginemen as well as the conductors on the trains enroute between Albion and North Bessemer. The various uses of this train communication system, in train operation, will be explained in detail later in this article.

Equipment Used by Engine and Train Crews

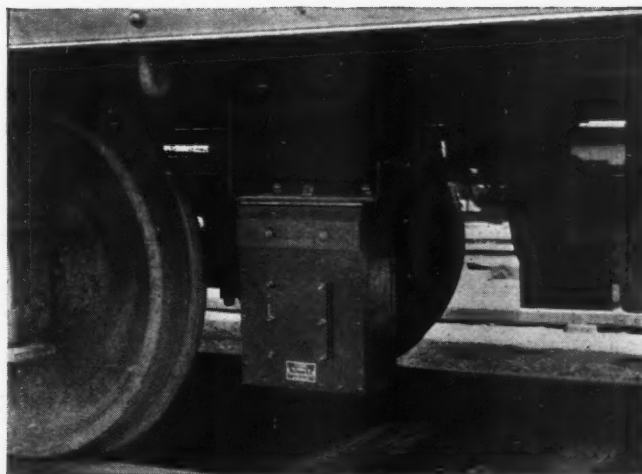
The equipment used by the engine and train crews is quite similar to ordinary telephone apparatus. On a locomotive as well as on a caboose, the incoming spoken mes-

sage is produced in a loud-speaker, so constructed that it will withstand vibration, and will not be affected by moisture. Each transmitter, which resembles the hand set of a cradle-type telephone, hangs normally on a hook at the left of a small case, which is mounted on the wall of a caboose or on the rear board of the locomotive cab near the engineman. When sending a message, the transmitter is removed from the hook and held in the hand so that, when speaking, the fingers can press on a button in the handle. One lamp in the front of the case is lighted to indicate that the equipment is in operation and ready for use. As each word is spoken and is being transmitted, a second light is flashed as an indication that the transmission circuit to the rails is operating correctly.

Speech into a transmitter, in the normal tone of voice, is reproduced by the loud-speaker at the receiving end in a manner which is readily understandable. The conversations in this service require only a comparatively small vocabulary, including only the names of stations and certain railroad terms such as "hot-box," "brake sticking," etc. For this reason, the members of the engine and train crews readily comprehend the meaning of incoming messages regardless of noises involved in locomotive and train operations. The transmission of conversation is, therefore, not only adequate but highly satisfactory.

Method of Using the System

As the loud-speakers on all of the locomotives and cabooses are cut in at all times when the trains are in service, a system of calling and identification is used to insure that the conversation is between the proper parties and to provide for "standing by" and "signing off" so that any other person who is waiting to make a call will



A Receiver Coil is Mounted Over Each Rail on Each Caboose as Well as on Each Locomotive

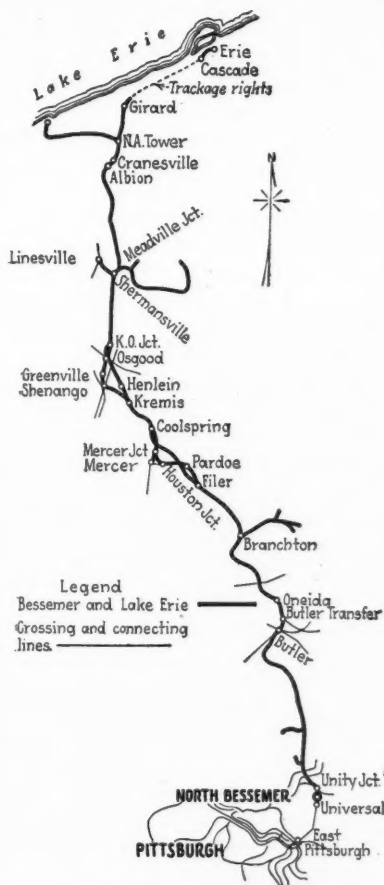
know when to proceed without interrupting. Calling is accomplished by pressing a button on the front of the box, which causes a loud tone to be produced in the loud-speaker at the opposite end of the train. Having sent out such a call, a conductor, for example, identifies himself and the party to be called, by speaking into his transmitter, a complete form of procedure may be given as an example as follows: "Caboose 1904 calling engine 609. 1904 calling 609. 1904 standing by." The engineman hearing this call, answers: "This is 609, come in 1904." The conductor replies: "1904 talking to 609, we have a hot-box, 20 cars from the rear end, stop the train at Cold Springs siding so that we can investigate. Standing by." The engineman replies: "609 speaking to 1904, I understand and will stop at Cold Springs." The conductor closes the conversation by saying: "1904 calling 609. That is right. 1904 signing off." The conductor and engineman then return their transmitters to the hooks. The members of the engine and train crews soon become accustomed to each others voices and the intonation of words near the ends of sentences. Therefore, in actual practice, after being started, a conversation is carried on about the same as over an ordinary telephone, the terms "come in," "standing by," and "signing off" being omitted.

If the engineman or the conductor of a train notices a defective condition on a train traveling in the opposite direction on the other track, and he does not know the engine or caboose number, he can give the calling signal, and say, for example: "1904 calling northbound freight near Euclid station. You have a dragging brake rigging about the middle of your train. 1904 signing off." He repeats this procedure until he gets a reply from either the engineman or the conductor of the other train.

Examples of Usefulness

The system is utilized for communication concerning various circumstances arising almost daily, whereas others of equal importance occur rarely. When a train is made up in a yard, and the train line pressure is being pumped up, a member of the crew on the caboose watches the air gage, and, by means of the telephone system, informs the engineman when the pressure has reached a value at which a brake application test can be made. When the application comes through, the man in the caboose tells the engineman so that he can start pumping up again, and then informs him that the crew is all on board so that the train can pull out promptly.

On account of different ruling grades on certain sec-



Map of Bessemer & Lake Erie

tions, trains are required to adjust tonnage by setting off and picking up cars at certain points. Also, at several important towns and points of interchange with other roads, cars are set out and picked up. Each time the train is opened and re-coupled, the communication system is used to inform the engineman regarding train line pressure and the brake test, as explained previously. When any such moves are being made, the engineman and the conductor or a trainman in the caboose can keep each other informed concerning the progress being made and co-operate in getting the train coupled, and agree when the train is ready to start, at which time the man in the caboose informs the engineman when the flagman is closely approaching or arrives at the caboose, so that the train can be started promptly. When a train is pulling into a passing track or crossing over from one main track to the other, a man on the caboose can keep the engineman informed when the caboose is approaching the switch and also when the rear end is in the clear. Likewise, when a train is pulling out of a yard or a passing track, a man in the caboose can keep the engineman informed of the location of the rear end with reference to the switch, so that the speed can be adjusted to permit a trainman to close the switch, and to board the caboose without stopping the train, after which the train can be accelerated at once. The passing of all this information by whistle blasts and hand signals obviously entails extended delays because of the fact that the main line includes numerous curves around high hills which obstruct the view between the locomotive and caboose of freight trains.

On certain sections of the B. & L. E., each tonnage train is handled by two locomotives, one at the head end, and the other at the rear end of the revenue cars, with the caboose behind the rear locomotive. When a train is to be started, the conductor uses the telephone to inform the engineman of the head-end locomotive, and uses hand signals to inform the engineman of the rear locomotive. If the train is waiting for a block and gets a signal to proceed, the engineman of the head-end locomotive uses the telephone to inform the conductor. By starting the rear locomotive to take up the slack in about half the train, the head-end locomotive can start its half of the train. By using the telephone system, the starting of the two locomotives can be co-ordinated with the best results.

When trainmasters or other railroad officers are riding on cabooses in line of duty, and desire to drop off at some point, the engineman can be directed by the telephone when the caboose approaches the place, and also be advised when the party has stepped off, so that the train can again be accelerated at once, without dragging along at a slow speed for an extended distance because the engineman does not know the relative location of the caboose and the point of debarkation or whether the party has yet stepped off. In such instances, from five to ten minutes train time is saved by the use of the telephone. This item is of importance because the trainmasters spend the majority of their time riding trains rather than in their offices.

Telephone Useful in Emergencies

In addition to the day-to-day use, the train telephone system has proved to be extremely helpful in unusual circumstances and emergencies. Tonnage trains of cars heavily loaded with ore or coal must be handled carefully on this line through rolling country with numerous curves, grades, sags and "hogbacks," otherwise, slack action will break knuckles or pull out drawbars. The use of the telephone system in reducing the number of

occasions for stopping and starting these trains is, therefore, a great aid in reducing the number of broken knuckles. In past years, from three to a half-dozen or more knuckles were broken each month, with attendant delays, whereas no knuckles were broken during the entire month of April, and the telephones, in part, contributed to this accomplishment.

When a train breaks in two on account of a broken knuckle, the extent of the hazard with reference to cars fouling the other main track must be determined, and until such possibilities are checked, a member of the train crew must provide flag protection on both tracks at the rear of the train, and, likewise, the fireman must provide similar protection at his end of the train. As soon as the conductor determines that the second track is not fouled, he can use the telephone to inform the engineman so that the fireman can return to his duties on the locomotive. Without telephones in service, a member of the train crew would have to walk to the locomotive to convey the information.

After the knuckle is replaced, the telephones are a great help in the majority of instances in advising the engineman concerning the distance he must back his section of the train to couple up again, pump up the air, make brake tests, call in the flagman, and get under way again, without losing any more time than necessary. In instances where draft gears are pulled out and one or more cars must be set out, the telephones save at least 30 minutes time in making the moves required and in getting the train recoupled and started.

When a member of the train crew notices a hot-box on one of the cars of the train, the engineman is advised by telephone at once, and if the train is very far from a station or yard, the conductor tells the engineman to stop the train as soon as practicable. Under the operating conditions explained previously, the practice of "pulling the air" at the caboose to set the brakes and stop the train, is not practicable; to do so might cause the train to break in two. For this reason, the brakes are not applied from the rear of a train except in cases of extreme emergency. The use of the telephone makes it unnecessary.

By being advised of the approximate location in the train, of a car with a hot-box, and by conversation with a member of the crew in the caboose, the engineman can know of the progress being made in cooling the journal and know how the locomotive fire should be handled to conserve fuel, as well as to be prepared to proceed or to arrange to stop and set out the car at the next siding. The same general procedure applies in case of a dragging brake beam, etc.

In case the engineman, fireman, or head brakeman riding the locomotive, notices a hot-box or dragging equipment in the forward section of the train, the train is, of course, stopped, but in the meantime the engineman informs the conductor by telephone of the circumstances, and after stopping, keeps him advised of the extent of the damage, any assistance needed, etc. Without the telephone, if a train makes an unusual stop, the conductor is required to start walking at once toward the front end to determine what is wrong. Therefore, in numerous such instances, the use of the telephone saves 20 to 30 minutes.

When a brake is sticking on a car toward the rear of the train, as may be evidenced by sparks thrown from the brake shoes, a member of the crew in the caboose can telephone to the engineman, who pumps up the air pressure sufficiently to kick off the brakes on all cars, and when this is accomplished he is so advised by the telephone.

The transmission of the communication energy in this

new system represents a development somewhat different from any wire transmission or radio, as commonly known. Obviously wire connections through the cars of trains would be impracticable, and would be disrupted when a train was uncoupled. Ordinary high-frequency radio communication would not be confined to the railroad, and, therefore, could be picked up by privately-owned receiving sets. Furthermore, practically all of the high-frequency radio wave bands are already used for other purposes.

In order to meet these requirements, a system was devised in which the rails serve as the primary transmitting medium, together with line wires on the pole line as a secondary medium co-operating with the primary medium as a result of their close parallel location. Electrical connections to line wires are used only in special locations, such as wide yards.

The sending and receiving equipment include vacuum tubes similar to those in ordinary radio sets. Voice frequencies, ranging from 400 to 2,300 per second in the transmitter, are conducted through a vacuum tube amplifier where the voice frequencies modulate the 5,700-cycle carrier wave produced by a vacuum tube oscillator. The modulations result in a transmitting wave band of between 6,100 and 8,000 cycles, and this energy is amplified and transmitted through an output transformer to an output circuit. When sending, this circuit is connected to by two wires, one to the front and the other to the rear truck, and connections are made through the axles and wheels to the rails. On a caboose with a steel underframe, one truck is insulated from the car by a micarta liner which covers the bearing surface of the truck centerplate. On a locomotive, the rear tender truck is insulated from the underframe, and the front truck as well as the locomotive wheels serve as the other terminal.

The modulated 5,700-cycle energy flows in the same direction in both rails between the two trucks of a vehicle. Although these sections of rail serve metallicity to complete the circuit, the electrical impedance of the steel rails to the flow of this 5,700-cycle energy causes a difference in voltage between the two ends of the points where the wheels contact the rails. This difference in potential causes a certain percentage of the 5,700-cycle

energy to extend along the rails in each direction from the vehicle, and the circuit for this current is completed back through ground. It is this part of the circuit and distribution of energy, beyond the limits of the length of the vehicle, that is used for transmission of the communication. The range of operation includes considerably more than a train length. Furthermore, this energy is picked up inductively by the wires of the pole line, and the current in these wires decreases with distance very much more slowly than the current in the track. The result is that some distance away from the sending vehicle, the current in the line wires induces local current in the rails, thus adding to the current already there and assists the equipment on a distant vehicle to pick up the message. Thus the range is increased so that this energy can be picked up by receiving equipment on any other train within a range of from three to seven miles, and in some tests up to forty miles, depending on local circumstances. The inductive effects between the rails and the pole line also make possible the communication between a wayside station and locomotives and cabooses. By thus using the rails and the pole line as a transmitting medium, the communication energy is confined primarily to the railroad property and does not interfere with privately-owned ordinary radio receiving sets.

At the receiving end, that is on a caboose or locomotive, the 5,700-cycle energy is picked up inductively by a pair of receiving coils, one over each rail. The energy is then amplified and the voice frequencies are sorted out for operation of the loud-speaker.

Power Supply for Telephone System

In either a locomotive or a caboose, a supply of 32-volts direct current is required by a dynamotor and filter which produce 400 volts to energize the vacuum tubes. About 500 watts is required when transmitting a message and about 200 watts when receiving. On a locomotive this 32-volt d-c. supply is taken from the existing headlight generator. On a caboose the 32-volt supply is taken from a set of 16 cells of 300 a.h. Exide Ironclad storage battery which is located under one of the seats. This battery is charged at Albion during the layover period between round trips.

* * * *



Photo Courtesy R. T. Dooner

NEWS

Feeler by Lea On S. 2009 Bill

Asks present view of solons
who favored bill in '39 but
voted to recommit in '40

Among the latest maneuvers which have become known in connection with the current effort to revive S. 2009, the omnibus transportation bill, is a letter sent by Conferee Lea, chairman of the House committee on interstate commerce, to those members of the House who voted against recommitment when the bill originally passed the House but later supported the successful move to recommit the conference report with instructions to reinsert the toughened-up version of the Harrington "labor-protection" amendment and the Miller-Wadsworth and Jones rate amendments. The Lea letter, designed to elicit the present position of his colleagues with respect to these controversial amendments, stated that the chairman did not desire to have signatures to the replies, which would not be treated as personal commitments.

Meanwhile, Mr. Lea reiterated his own well-known views with respect to the amendments. In that connection he wrote as follows: "The Jones Amendment, roughly speaking, proposed equal treatment in export rates between agricultural and industrial products. Of course, to that extent the amendment would be only a reassertion of existing law. The method of requiring equality of treatment, however, disregards the fundamental rule of reasonable rate-making and sets up an arbitrary standard as a comparative basis for requiring export rates. The amendment, as written, is difficult, if not impossible of practical enforcement. For that reason, it might not be greatly destructive of the purposes of the bill.

"The Wadsworth Amendment sets up an arbitrary minimum rate rule that if enforced would increase freight rates on a large percentage of low-cost material that now moves at lower rates. I think this amendment very destructive. If enforced, it would not only greatly disturb our rate structure, farmers and business concerns affected, but it would largely nullify the benefits of the transportation legislation. That the traffic must move, even at a low margin if necessary, is a fundamental of a successful rate structure for this country. We have a great volume of low-grade freight that must move, if at all, over long hauls on a very low margin.

"The substitute Labor Amendment, in-

sofar as it authorizes the Interstate Commerce Commission to make reasonable provisions for employees affected by consolidations, is in harmony with the present law as announced by the Supreme Court and conforms to the provision in the bill as originally reported to the House. A further provision, however, in substance requires employees to be maintained after there is no job for them at not less than their former pay, and regardless of any qualification as to length of service, or limit of time the employer must carry such responsibility. An abandoned line is the next thing to a bankrupt line, and to require employees to be continued on a full salary basis without work to perform is beyond what reason can demand."

There has been no joint meeting of the Senate and House conferees on S. 2009 since June 20, although informal discussions have continued and the House group got together on July 11—the day Congress recessed until July 22 to permit members to attend the Democratic national convention. It is understood that no proposal has yet been evolved that would be acceptable to railroad labor as a substitute for the Harrington amendment; but the conferees were expected to make a serious effort to work out some compromise after Congress reassembles. Thus there remains some hope that the bill may yet be saved, provided, of course, that the sine die adjournment of the session does not come in the near future.

Express Agency Qualifies As Self-Insurer Under Motor Act

The Interstate Commerce Commission, Division 5, has approved the application of the Railway Express Agency, Inc., for authority to qualify as a self-insurer under the provisions of section 215 of the Motor Carrier Act.

Special Car Orders Cancelled

W. C. Kendall, chairman of the Car Service Division, Association of American Railroads, on July 10 cancelled the 1940 reissue of Special Car Order No. 37 which applied to ventilated box cars of the Atlantic Coast Line, Central of Georgia, Charleston & Western Carolina, Louisville & Nashville, Seaboard Air Line and Southern. On the previous day, July 9, Mr. Kendall had cancelled Special Car Order No. 40 which applied to Grand Trunk Western 50-ft. end-door box cars in the 591000 series, required because of a heavy movement of United States government trucks originating on that road. This movement, the cancellation notice said, "is now practically completed."

R. Budd Reports To President

Carriers urged to reduce b.o.
cars to 6 per cent—Finds
car supply dislocation

The National Defense Advisory Commission's Division of Transportation has been placing emphasis upon "securing a suitable car supply to meet emergency demands upon rail transportation," according to a progress report submitted to President Roosevelt on July 16 by Ralph Budd, transportation member of the commission. The President made Mr. Budd's report public along with others he had received from the six other members of the commission.

His Division, Mr. Budd said, is "working closely with the Association of American Railroads and the American Short Line Railroad Association." He added that "there is at present a dislocation of car-loadings in the country—certain areas are confronted with definite increases while others are experiencing a decrease." As a result of a study of the availability of serviceable freight cars Mr. Budd has urged upon the Association of American Railroads "the need for full performance by all lines of the repair work necessary to reduce cars in bad order to not more than six per cent, as was agreed." In that connection the Defense Commission on July 17 made public a letter which Mr. Budd had written to J. J. Pelley president of the A. A. R. Commenting on the Budd report as he read it to reporters, President Roosevelt said he thought that a six per cent bad-order figure would be the lowest in the history of American railroading.

Meanwhile, as Mr. Budd also told the President, "Concrete recommendations have already been drawn up for the acquisition of very substantial numbers of special rolling stock for handling troops and their equipment. Conferences have been held with representatives of railway car shops in Illinois, Indiana, Missouri and Pennsylvania to discuss cost and types of cars." In response to a question, Mr. Roosevelt explained that this special rolling stock would be paid for by the government, because it would be of no use for civilian transportation requirements. As an example of such equipment he cited what he thought was called the "cellar" type of car, i. e., a flat car with its floor depressed to permit the loading of tanks within clearance limitations.

Continuing, the progress report said:
(Continued on page 124)

Says Roads Need 500,000 Cars

Gov't economist believes
carriers should be ready
for maximum traffic

Looking beyond the immediate situation to the possibility of maximum production under a war emergency, the railroads face the necessity of acquiring a total of 500,000 new freight cars between now and the end of 1942, according to what are understood to be the tentative conclusions of the report on railway car requirements prepared by R. N. Janeway for the National Resources Planning Board and now being distributed in government and other circles for confidential review and criticism. The report has not yet been seen by the Planning Board which does not ordinarily pass upon or publish such surveys of its staff members until they have passed through the aforementioned review-and-criticism stage.

Among other government agencies which have received the tentative draft is the National Defense Advisory Commission. Recent utterances of Ralph Budd, the commission's transportation member, and reports of his views would seem to indicate that he would not regard such a program as necessary; at his Washington office it was said last week that a report about his having rejected the Janeway proposal had been called to his attention, but he had no comment at that time.

The above estimate of railroad needs for 500,000 cars is understood to have been derived from a study of the correlation between carloadings and the Federal Reserve Board index of industrial production. What were regarded as authoritative estimates of the maximum potential production with full employment were considered and from them it was assumed that in such a situation the F. R. B. index number would be 152. The correlation study indicated that 1,840,000 railroad-owned serviceable cars would be needed to care for the country's rail transportation needs at such a production level. This, it was next calculated, is 360,000 more cars than are now available. But in order to get a net addition of 360,000 cars by the end of 1942, Mr. Janeway is reported to have decided that 500,000 cars must be built within that period—because 140,000 cars now included in the serviceable surplus will have come due for retirement by the end of 1942. The report is said to have put the total investment involved in a program of 500,000 cars at upwards of \$1,250,000,000; and it also went into the country's car-building capacity.

In the latter connection it is noted that the program would contemplate building at the rate of 200,000 cars per year. This is set against a rated capacity of the private car building industry of 240,000 cars a year; but a point is made of the fact that during the last 25 years the maximum output attained was 176,000 in 1923 while not since 1925 have as many as 100,000 cars been built annually. Thus Mr. Janeway is reported to have expressed the view that it is unlikely that the industry would have

maintained such excess capacity during the lean years—he thinks 200,000 cars per year would be a maximum expectation, requiring at least six months preparation. It is suggested, however, that standardization of design and pooling of orders should go far to accelerate output and cut manufacturing costs.

The Janeway report as a whole has been described as a comprehensive one, analyzing such aspects of the problem as freight car performance, projected freight car requirements, and the economics of the freight car. Interspersed throughout the text are several charts while the basic data used are set out in a series of tables. With respect to the idea of repairing unserviceable equipment, Mr. Janeway is understood to have worked up repair-cost data in support of his conclusion that reconditioning of 20-year-old cars is basically uneconomic and expenditures for heavy repairs to 25-year-old cars which have not previously been rebuilt are wasteful. With further reference to that aspect of the situation he calculated that 40 per cent of the serviceable cars are over 20 years old and 20 per cent are over 25 years old.

It was Defense Commissioner Budd's talk at June 18's Chicago meeting of Association of American Railroads member roads that left in railroad circles the impression that he does not regard the car-buying program outlined in the tentative draft of the Janeway report as necessary. There Mr. Budd is understood to have indicated that he does not intend to interfere with railway management, but would endeavor to look ahead with the carrier executives as far as possible to anticipate requirements. Furthermore, Mr. Budd is reported to have expressed the view that at the present time there is nothing to excite the railroads, pointing out that carriers in certain sections of the country are busy but others are experiencing slack traffic. The defense commissioner is also understood to have been impressed with an analysis made by the Bureau of Railway Economics which undertook to show that the Federal Reserve Board index of production is not a proper one for correlating with carloading figures.

Meanwhile the latest compilation of replies to the A. A. R.'s recent request for information on the car situation shows that on June 1 there were available 39,527 more serviceable freight cars than on October 1, 1939. A total of 15,039 cars were on order as of June 1, while 20,496 others were about to be ordered and 12,985 rebuilt. All in all the compilation indicated that by October 1 the serviceable cars would exceed by 147,097 the number which were available last October.

Mexican Railways Cut Workers' Pay

On July 14, the general executive committee of the Worker's Administration of the National Railways of Mexico told the 50,000 employees they must accept a general wage reduction of 1,800,000 pesos (\$360,000) a month to save the lines from "financial chaos." The committee asserted the railways had accumulated a debt of 13,000,000 pesos (\$2,600,000) since 1938 under the operation of the Workers Administration.

"Buster" Arnold Sues Pullman Co.

Alleges tie-up between manu-
facture and operation has
slowed up modernizing

The Department of Justice on July 12 filed in the Federal District Court at Philadelphia, Pa., a complaint under the federal anti-trust laws against the Pullman Company and its affiliates and officers. "Briefly stated," said Assistant Attorney General Thurman Arnold in announcing the suit, "the substance of the complaint is that the Pullman organization has prevented the railroads from using modern, light-weight, streamlined cars manufactured by competing companies in order to maintain in service its own obsolete equipment. It is charged in effect that the dominant position of the Pullman organization has given it power to force on the railroads restrictive contracts which compel them to use Pullman-built-and-operated sleeping car equipment exclusively, or it cannot be used at all. It is alleged that the railroads and the traveling public have been denied the widespread use of modern equipment by the monopolistic practices of the Pullman organization."

Later on the Arnold statement explains that the action is a civil suit. Such procedure was decided upon instead of a criminal action because the contracts between Pullman and the railroads "have been publicly recorded for many years with the Interstate Commerce Commission." The complaint names as defendants four corporations and 31 individuals. The corporate defendants are: The Pullman Company; Pullman-Standard Car Manufacturing Company; Pullman Incorporated; and Pullman Car & Manufacturing Corporation of Alabama. The individual defendants include joint officers of the Pullman Company and Pullman Incorporated as follows: David A. Crawford, president; E. Eugene Adams, vice-president; Louis S. Taylor, vice-president. Also named are George A. Kelly and Lowell M. Greenlaw, respectively vice-president and general counsel of the Pullman Company.

Defendant officers of the Pullman-Standard Car Manufacturing Company are: Charles A. Liddle, president; Ellis W. Test, assistant to the president; Wallace N. Barker, vice-president; H. H. Gilbert, vice-president; H. M. Dudley, comptroller; J. A. Knowlton, secretary; William J. Peters, treasurer. Remaining defendants are the following directors of one or more of the Pullman companies: Sewell L. Avery; James F. Bell; William Bierman; Arthur O. Choate; J. Frank Drake; R. S. Euler; R. L. Gordon; P. G. Jenks; Donald R. McLennan; Richard K. Mellon; J. Pierpont Morgan; H. S. Morgan; John R. Morron; Alan M. Scaife; C. W. Seabury; Alfred P. Sloan, Jr.; Henry S. Sturgis; H. S. Vanderbilt; Geo. Whitney.

After briefing the issues, as noted above, and listing the defendants, Assistant Attorney General Arnold's statement continues as follows:

"The Pullman Organization.—The Pull-

man organization owns and operates virtually all sleeping cars used in the United States. It is also the largest manufacturer of railroad rolling stock in this country. The operating business is performed by The Pullman Company and the manufacturing business is performed by the Pullman-Standard Car Manufacturing Company. Both of these corporations are owned by Pullman, Inc., which is merely a holding company.

"Nature of the Practices Alleged to Be Illegal.—About ten years ago modern streamlined trains were developed and placed in operation by a number of railroads. Then, as now, the Pullman organization owned approximately 6,000 sleeping cars, many of which were over 20 years old. The complaint charges that the Pullman organization, in an endeavor to protect these obsolete cars from the competition of new types of rolling stock, forced the railroads to use existing equipment and prevented them from operating light-weight, streamlined sleeping cars, and that as a consequence the production of modern railroad equipment by independent manufacturers and its use by the railroads have been hamstrung. Specifically, it is alleged that defendants have refused to operate modern light-weight railroad equipment purchased by the railroads from any manufacturer other than the Pullman-Standard Car Manufacturing Company, and have threatened to withdraw the existing sleeping car service and operations if railroads buy and operate themselves any cars made by other manufacturers.

"The complaint also alleges that the Pullman organization, by virtue of its operating monopoly, charges the public artificial and unreasonably high prices for Pullman accommodation, and exacts non-competitive and onerous terms from railroads for the sleeping-car service which it provides. It is charged that the Pullman Company requires the railroads to guarantee it a profit, and thus employs its powerful position to reap profits from the railroads without sharing the risks of that business. The complaint points out that the defendants are not subject to the regulation of the Interstate Commerce Commission as to those activities which are charged to be unlawful.

"Nature of the Relief Sought.—The Department is proceeding in this case by civil action rather than by criminal action because the contracts between the Pullman organization and the railroads which contain provisions alleged to be in restraint of trade have been publicly recorded for many years with the Interstate Commerce Commission, hence it would seem more appropriate at this date to institute civil proceedings when the government has been on notice for so long of the existence of these contracts and practices.

"A civil proceeding is also necessary because of the nature of the relief required. The Department believes that certain provisions of the operating contracts between The Pullman Company and the railroads should be cancelled and that the corporation which manufactures rolling stock should be divorced from the corporation which operates sleeping car service. This relief can only be gained through civil proceedings.

Are Employee Magazines Worth Their Cost?

A study, based upon actual facts and figures, of the functions served by the employee magazines of the American railroads—compared with the cost of such publications—has been prepared by the American Railway Magazine Editors' Association.

Detailed statistics are given for 16 different magazines—the number issued in relation to the carrier's number of employees; the size of the editorial staffs; the gross cost per issue; the advertising revenue (if any) per issue; the cost per copy; size, and kind of paper used. The cost per copy is shown to range all the way from 2½ cents to 13 cents (the average being 6 cents).

Statements are included from executives of the carriers issuing such publications, giving their views on their usefulness in comparison to their cost.

J. L. James of the L. & N., Louisville, is chairman of the A. R. M. E. A. promotion committee and, presumably, copies of this report are available from him to properly interested persons.

"Anticipated Results of this Proceeding.

—The antitrust laws do not prohibit a combination of corporations or the creation of a large scale industrial organization which is required by technological development and which passes on to the consumers the savings which its size and organization make possible. The Pullman organization, according to the allegations in the complaint, represents the union of two corporations through the holding company device to consolidate economic power for the primary purpose of stifling competition and exacting monopolistic profits. It is alleged that there is no economic justification for the alliance of the manufacturing business with the operating business except the resulting power to restrain competition, increase prices, and secure undue profits.

"Under these circumstances, divorce of these two corporations and dissolution of the holding company through which they are united would keep the holding company from being used as a device to restrain trade, and it would thus remove an abuse of the corporate privilege without restricting its legitimate scope. Such a remedy would also preserve the advantages of size and efficiency in both the operating and manufacturing business without permitting the combination of various industrial enterprises which restrain competition without yielding greater efficiency. The relief sought would leave the railroads free to buy modern streamlined equipment without risking loss of their operating contracts with The Pullman Company. The Pullman organization would be put in a position where it would have to face the competition of other manufacturers of sleeping cars who are willing to make modern light-weight, streamlined equipment.

"If the facts alleged in the complaint are established and the relief sought by the government is granted, there should, the Department is informed, be a rapid expansion in the use of modern light-weight streamlined equipment and free enterprise in the manufacture, sale, and use of rolling stock should be stimulated. In recent years almost half of all railroad passenger traffic, excluding commutation, has been carried on Pullman cars. It is obvious, therefore, that if the relief sought is granted, both the traveling public and the railroads will greatly benefit since a cessation of the practices charged to be unlawful should result in lower rates to be charged the public and increased revenues to the railroads.

"In view of the great public importance of this case, the Attorney General has also filed a certificate, pursuant to statute, requesting that an expediting court consisting of three judges of the Circuit Court of Appeals be convened to hear the case. Assistant Attorney General Thurman Arnold announced that his first assistant, Wendell Berge, would be in charge of the case on behalf of the government."

Bill for Mail Service by Motor Vehicle Signed by President

President Roosevelt has signed H. R. 6424, the recently-enacted bill which authorizes the Postmaster General to contract with motor carriers for transporting mail and postal clerks. The authorization is limited to situations where "it is found that adequate railroad facilities are not available."

Budd Names Advisors

Four additional advisors have been appointed by Ralph Budd, transportation member of the National Defense Advisory Commission. They are J. M. Hood, president of the American Short Line Railroad Association, Thomas P. Henry, president of the American Automobile Association, Fayette B. Dow, Washington representative of the American Petroleum Institute; and A. W. Dann, of the Union Barge Line Corporation, Pittsburgh, Pa.

Passenger Service to Be Temporarily Dropped for Troop Manoeuvres

In order to facilitate troop movements in connection with manoeuvres in the northern part of New York State, the Public Service Commission has authorized the New York Central to suspend operation of all passenger trains on the DeKalb branch between DeKalb junction and Ogdensburg, a distance of 19 mi., on August 5 and 6 and August 23 and 24. Trains affected by the temporary suspension are those operating between Ogdensburg and Philadelphia and Ogdensburg and DeKalb junction. Substitute service by bus and truck will be provided for passengers, mail, express and baggage during the period of suspension.

Daily Chicago-Florida Streamlined Service About December 1

Arrangements have been completed and orders have been placed for the necessary power and equipment for daily 29½-hr. streamlined train service between Chicago

and Miami, Fla., which will begin about December 1. Nine railroads will co-operate in providing the service over three routes and each route will operate a train every third day in each direction, alternating to provide daily departures from Chicago and Miami. The proposed schedule of approximately 29½ hr. compares with previous schedules of 32 hr. for the winter season trains. The roads which will participate in the service are the Atlanta, Birmingham & Coast, the Atlantic Coast Line; the Central of Georgia; the Chicago & Eastern Illinois; the Florida East Coast; the Illinois Central; the Louisville & Nashville; the Nashville, Chattanooga & St. Louis and the Pennsylvania.

Commission Rescinds Order in C. C. C. Case

The Interstate Commerce Commission has rescinded its order of April 1, 1940, which would have reopened for reconsideration its decision in I. and S. No. 4595, excursion fares for C. C. C. camp enrollees in the West. As a result of this action, the order of December 4, 1939, will stand without amendment. In that report the commission, in an eight to three decision, affirmed an order of Division 3 which had found not justified the proposed establishment of reduced passenger fares for the exclusive use of enrollees of the Civilian Conservation Corps traveling on furlough or leave at their own expense.

As pointed out in the *Railway Age* of February 3, page 261, the issues involved in the case are these: The steam carriers had been hauling the enrollees from their C. C. C. camps to their homes for return visits at a one-cent-a-mile rate, the same as the carriers charge the government for carrying them to their camps. The motor carriers asked the commission if it would be lawful for them to offer similar rates. W. V. Hardie, director of the commission's Bureau of Traffic, held that such rates were unlawful unless appropriate tariffs were filed with the I. C. C.

As a result of this ruling, the railroads filed tariffs with the commission, which were later suspended on the ground that such rates could not be offered to enrollees and not to other indigents. The railroads have taken the position that they should have refused to file the tariffs and should have continued to give the low rate and permitted the commission to go into court to seek to enjoin them from the practice. As a result the carriers asked the commission to dismiss the case, but this petition has been refused and the commission order cancelling the tariffs without prejudice to filing new ones goes into effect.

F. T. C. Probing Rail-Delivery Cement Prices

Allegations that certain cement manufacturers quote on their product only a flat price including rail delivery and thereby discriminate against small buyers who seek to have the transportation performed by motor truck are being investigated by the Federal Trade Commission. While F. T. C. made no announcement, the probe became known when "Transport Topics," organ of American Trucking Associations, Inc., gave publicity to a letter which had

Southern Roads Slash 45 P. C. of L. C. L. Class Ratings

More than 4,000 classification ratings on less-carload and carload merchandise traffic published by the member carriers of the Southern Freight Association will be lowered effective July 15 and September 1. Made after a nation-wide survey and a number of conferences between shippers and receivers of freight and railroad and coastwise steamship members of the association and the Southern Classification Committee, all revisions are reductions below the present ratings and represent approximately 45 per cent of total l. c. l. ratings in the southern classification.

Some 600 reductions in l. c. l. ratings are published to become effective July 15, while 3,600 l. c. l. and 223 carload ratings will be effective September 1. To summarize the changes briefly, about 3,000 of the l. c. l. ratings to be effective September 1 report reductions of one class or less; 1,000 not less than two classes and over 100 more than two classes.

The rates will apply between all points within the South including St. Louis, Mo., and East St. Louis, Ill., and, in addition, to north Atlantic ports in connection with steamship lines. It is reported that northern and western roads are considering application of the reduced ratings to inter-territorial traffic to and from the South.

been received by J. Ninian Beall, general counsel of A. T. A. from Walter B. Wooden, assistant chief counsel of F. T. C.

Mr. Wooden requested Mr. Beall to develop any pertinent facts with respect to the above allegation. While the request ran particularly to the cement situation, the Wooden letter also suggested that the commission would welcome any similar information about cast iron pipe and other commodities. "These interferences with truck transportation by producers of commodities who sell them on a delivered price basis," it said "are probably an indication of attempts to interfere with price competition on the commodities involved."

June Operating Revenues 6.8 Per Cent Above June, 1939

Preliminary reports from 89 Class I railroads, representing 81.2 per cent of total operating revenues, made public by the Association of American Railroads, show that those railroads, in June, had estimated operating revenues amounting to \$279,031,561 compared with \$261,175,665 in the same month of 1939, and \$364,443,186 in the same month of 1930. Operating revenues of those roads in June, were 6.8 per cent above those for June, 1939, but 23.4 per cent below June, 1930.

Freight revenues of the 89 Class I roads in June amounted to \$225,592,753 compared with \$205,461,462 in June, 1939, and \$271,-

785,402 in June, 1930. Freight revenues in June, were 9.8 per cent above the same month of 1939, but 17.0 per cent below the same month in 1930. Passenger revenues totaled \$29,973,361 compared with \$32,561,589 in June, 1939, and \$56,752,197 in June, 1930. For the month of June, 1940, they were 7.9 per cent below the same month in 1939, and 47.2 per cent below the same month in 1930.

Freight Car Loading

Loading of revenue freight for the week ended July 13 totaled 740,465 cars, the Association of American Railroads announced on July 18. This was an increase of 103,564 cars, or 16.3 per cent, over the preceding week which included the Fourth of July holiday, an increase of 70,577 cars, or 10.5 per cent, above the same week last year, and an increase of 138,020 cars, or 22.9 per cent, above the corresponding week in 1938.

As reported in last week's issue, revenue freight car loadings for the week ended July 6, totaled 636,901 cars, and the summary for that week, as compiled by the Car Service Division, A. A. R., follows:

Revenue Freight Car Loading For Week Ending Saturday, July 6			
Districts	1940	1939	1938
Eastern	126,550	110,001	95,458
Allegheny	133,627	104,444	86,879
Pocahontas	43,890	38,921	33,121
Southern	82,859	80,928	75,723
Northwestern	106,971	81,882	67,473
Central Western	99,010	97,031	97,511
Southwestern	43,994	41,945	44,816
Total Western Districts	249,975	220,858	209,800
Total All Roads	636,901	555,152	500,981
Commodities			
Grain and grain products	47,586	53,485	56,320
Live stock	8,876	9,418	9,896
Coal	103,272	85,897	70,545
Coke	10,439	5,600	3,833
Forest products	25,038	22,015	20,921
Ore	65,690	36,423	20,273
Merchandise l.c.l.	127,240	127,661	123,231
Miscellaneous	248,760	214,653	195,962
July 6	636,901	555,152	500,981
June 29	752,326	661,404	588,880
June 22	728,096	638,534	558,788
June 15	712,445	633,955	555,519
June 8	702,571	630,060	553,854

Cumulative Total,
27 Weeks ... 17,543,296 15,818,952 14,731,613

In Canada.—Carloadings for the week ended July 6 (affected by a holiday) totaled 51,907 as compared with 56,796 in the previous week and 47,146 a year ago, according to the summary of the Dominion Bureau of Statistics.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada:		
July 6, 1940	51,907	23,179
June 29, 1940	56,796	25,990
June 22, 1940	59,400	25,840
July 8, 1939	47,146	16,847
Cumulative Totals for Canada:		
July 6, 1940	1,351,840	665,595
July 8, 1939	1,158,098	558,330
July 9, 1938	1,183,178	558,666

Refurbished "Trail Blazer" Has New Features for Passengers

The Pennsylvania's "Trail Blazer," 17-hr., New York-Chicago, all-coach train, now comprises equipment turned out in the railroad shops during the spring and early summer which adds new aids to passenger comfort. Replacing a combination baggage-coach car of the original

Trail Blazer, a new baggage-lounge car has been placed in service at the head end, with a separate buffet service; this facility is in addition to the lounge-buffet-observation car at the rear of the train. The latest coaches to be turned out contain extra large wash rooms for both men and women, while the women's dressing rooms contain vanity tables and full-length mirrors. Standard-size windows have been replaced by double-width "panorama" double-glazed, dustproof windows of the dining car type.

Other new features include quick lather-producing liquid soap dispensers, improved light dimmers for use at night and subdued floor lights. The Trail Blazer customarily carries a baggage-lounge car, four coaches, dining car and observation-buffet-lounge car. The coaches and combination car which were operated on the original Trail Blazer are now carried individually on other through trains of the road.

Club Meeting

The Traffic Club of Pittsburgh, Pa., will hold its annual summer golf outing at the Pittsburgh Field club on July 25.

Locomotive Inspection Rule 116(b) Modified

Rule 116(b) of the Rules and Instructions for the Inspection and Testing of Steam Locomotives and Tenders and their Appurtenances has been amended by the Interstate Commerce Commission to read as follows:

(b) The front cab doors or windows of road locomotives used in regions where snowstorms are generally encountered shall be provided with what is known as a "clear vision" window, or an appliance that will clean the outside of such doors or windows over sufficient area to provide a clear view of track and signals ahead. If a "clear vision" window is used it shall be not less than 5 inches high located as nearly as possible in line of the engineman's vision and so constructed and fitted that it may be easily opened, closed and fastened in desired position.

The amendment was made in an order by Commissioner Patterson which set forth, as noted in the *Railway Age* of April 27, page 760, that the railroads had been cited to show cause by July 1 why the amendment should not be ordered. One of the "whereases" in Commissioner Patterson's order stated that "no cause has been shown by any said common carrier or party, within the time specified by the order." Language in the foregoing, not found in the present rule, includes the reference to "an appliance that will clean the outside of such doors or windows . . ."

Rail Movement to Market Safest for Livestock

In 1939, nearly three times as many cattle and calves, transported to market by truck, were dead on arrival, as by rail, in proportion to the number transported. This conclusion as to the relative safety of truck and rail transportation of livestock has been announced by the National Livestock Loss Prevention Board, after checking the results at the five leading midwest livestock marketing centers, St. Paul, Minn.; Sioux City, Iowa; Omaha, Neb.; St. Joseph, Mo., and Kansas City. Dr. W. T. Spencer, livestock commissioner of the Omaha Livestock Exchange and re-

gional manager of the Livestock Loss Prevention Board, reports that since the beginning of heavy to-market movement of livestock in trucks there has been a marked increase in losses due to dead and crippled animals of all classes. One of the biggest reasons for this increase, Dr. Spencer declares, is "mixed loadings—throwing cattle and hogs together—without proper partitions." Referring to 1939 experience, the Board's report says: "There were over four times as many cattle and 30 per cent more calves crippled by truck as by rail, in proportion to the number hauled. There were 3.2 times as many hogs and 4.6 times

as many sheep dead on arrival by truck as by rail, 10 per cent more hogs crippled by truck and nearly five times as many sheep crippled by truck as by rail, in proportion to the number hauled."

Roads Report Deficit of \$9,261,171 in April

Class I railroads reported an April deficit after fixed charges of \$9,261,171, as compared with deficit of \$27,623,773 in April, 1939, according to the Interstate Commerce Commission's monthly compilation of selected income and balance sheet items. The deficit for this year's first four

SELECTED INCOME AND BALANCE-SHEET ITEMS OF CLASS I STEAM RAILWAYS

Compiled from 132 reports (Form IBS) representing 137 steam railways
(Switching and Terminal Companies Not Included)

TOTALS FOR THE UNITED STATES (ALL REGIONS)

For the month of April		For the four months of	
1940	1939	1940	1939
Income Items			
1. Net railway operating income.....	\$33,822,209	\$15,323,769	\$148,929,976
2. Other income.....	10,547,184	10,567,202	43,103,724
3. Total income.....	44,369,393	25,890,971	192,033,700
4. Miscellaneous deductions from income.....	1,848,315	1,833,280	8,635,522
5. Income available for fixed charges....	42,521,078	24,057,691	183,398,178
6. Fixed charges:			
6-01. Rent for leased roads and equip-			
ment.....	11,280,516	11,102,674	43,410,056
6-02. Interest deductions.....	38,400,130	38,622,989	\$153,468,272
6-03. Other deductions.....	133,124	*8,067	518,811
6-04. Total fixed charges.....	49,813,770	49,717,596	197,397,139
7. Income after fixed charges.....	*7,292,692	*25,659,905	*13,998,961
8. Contingent charges.....	1,968,479	1,963,868	7,865,817
9. Net income.....	*9,261,171	*27,623,773	*21,864,778
10. Depreciation (Way and structures and	17,036,831	16,839,686	67,752,936
Equipment).....	2,864,826	631,214	11,308,799
11. Federal income taxes.....	755,996	1,615,932	15,872,675
12. Dividend appropriations:	764,781	764,962	5,265,416
12-01. On common stock.....			
12-02. On preferred stock.....			
Balance at end of April			
Selected Asset Items			
13. Investments in stocks, bonds, etc., other than those of affiliated com-			
panies (Total, Account 707).....	\$598,989,796	\$639,318,563	482,122,600
14. Cash.....	22,005,863	13,306,720	27,136,283
15. Demand loans and deposits.....	96,003,054	55,661,120	96,003,054
16. Time drafts and deposits.....	2,782,940	1,299,130	60,534,737
17. Special deposits.....	46,477,959	42,150,163	120,161,505
18. Loans and bills receivable.....	367,531,052	328,332,592	20,614,707
19. Traffic and car-service balances receivable.....	1,322,626	1,142,059	4,760,010
20. Net balance receivable from agents and conductors.....	\$1,251,453,336	\$1,081,132,702	
21. Miscellaneous accounts receivable.....			
22. Materials and supplies.....			
23. Interest and dividends receivable.....			
24. Rents receivable.....			
25. Other current assets.....			
26. Total current assets (items 14 to 25).....			
Selected Liability Items			
27. Funded debt maturing within 6 months#.....	\$258,006,296	\$251,732,716	179,144,094
28. Loans and bills payable¶.....	74,322,683	65,763,160	227,629,730
29. Traffic and car-service balances payable.....	61,891,021	65,265,330	27,258,758
30. Audited accounts and wages payable.....	1,835,556	1,809,750	2,033,506
31. Miscellaneous accounts payable.....	83,073,314	84,157,198	27,257,408
32. Interest matured unpaid.....	30,670,506	31,119,732	
33. Dividends matured unpaid.....			
34. Funded debt matured unpaid.....			
35. Unmatured dividends declared.....			
36. Unmatured interest accrued.....			
37. Unmatured rents accrued.....			
38. Total current liabilities (items 28 to 37).....	\$715,116,576	\$752,598,100	
39. Tax liability (Account 771):			
39-01. U. S. Government taxes.....	\$89,516,122	\$55,815,304	
39-02. Other than U. S. Government taxes.....	130,812,721	138,927,939	

§ Represents accruals, including the amount in default.

¶ For 99 railroads not in receivership or trusteeship the net income or deficit was as follows: April 1940, \$2,659,875; April 1939, \$14,168,891; 4 months 1940, \$18,366,545; 4 months 1939, \$21,627,216.

Includes payments of principal of long-term debt (other than long-term debt in default) which will become due within six months after close of month of report.

† Includes obligations which mature not more than 2 years after date of issue.

‡ 1939 figures for certain liability items have been revised, for comparative purposes, to conform with changes prescribed in the Uniform System of Accounts by Commission's order of December 6, 1939, effective January 1, 1940.

* Deficit or other reverse items.

NET INCOME OF LARGE STEAM RAILWAYS

(Switching and Terminal Companies Not Included)

Name of railway	Net income after deprec.		Net income before deprec.	
	For the four months of 1940	1939	For the four months of 1940	1939
Alton R. R.	\$791,988	\$729,512	\$705,741	\$643,964
Atchison, Topeka & Santa Fe Ry. System	1,840,776	3,566,381	2,089,775	377,634
Atlantic Coast Line R. R.	291,233	1,077,973	971,394	1,782,103
Baltimore & Ohio R. R.	2,684,394	4,577,306	2,942,296	2,180,992
Boston & Maine R. R.	381,419	511,359	102,421	8,720
Central of Georgia Ry.	1,007,094	978,925	721,890	694,763
Central R. R. of New Jersey	1,183,596	1,378,034	715,894	911,421
Chesapeake & Ohio Ry.	9,829,101	3,150,056	12,640,023	5,904,751
Chicago & Eastern Illinois Ry.	608,817	601,080	407,203	403,377
Chicago & North Western Ry.	5,877,890	6,799,172	4,228,666	5,145,872
Chicago, Burlington & Quincy R. R.	286,194	953,842	1,450,967	775,468
Chicago Great Western R. R.	413,495	438,645	226,656	259,032
Chicago, Milwaukee, St. Paul & Pacific R. R.	4,338,532	6,893,763	2,373,926	4,966,198
Chicago, Rock Island & Pacific Ry.	3,701,497	4,311,358	2,329,365	2,939,109
Chicago, St. Paul, Minneapolis & Omaha Ry.	1,148,520	1,248,552	959,184	1,054,868
Delaware & Hudson R. R.	216,493	379,380	567,768	718,612
Delaware, Lackawanna & Western R. R.	503,670	619,842	299,493	194,111
Denver & Rio Grande Western R. R.	2,016,148	2,093,995	1,600,762	1,690,484
Elgin, Joliet & Eastern Ry.	693,311	565,253	1,006,520	890,585
Erie R. R. (including Chicago & Erie R. R.)	1,508,527	1,787,418	301,507	561,647
Grand Trunk Western R. R.	107,377	1,009,594	503,669	621,800
Great Northern Ry.	3,003,008	4,702,940	1,778,405	3,468,423
Illinois Central R. R.	379,525	575,480	1,744,320	1,638,287
Lehigh Valley R. R.	788,188	139,693	90,381	569,940
Long Island R. R.	1,303,807	1,224,403	914,472	832,209
Louisville & Nashville R. R.	1,911,135	642,578	3,352,448	2,086,589
Minneapolis, St. Paul & Sault Ste. Marie Ry.	2,208,495	2,981,265	1,799,610	2,575,914
Missouri-Kansas-Texas Lines	1,328,915	1,538,914	926,562	1,093,444
Missouri Pacific R. R.	4,692,252	5,738,322	3,195,163	4,285,920
New York Central R. R.	1,459,674	7,321,287	3,836,552	2,046,875
New York, Chicago & St. Louis R. R.	485,054	121,973	1,014,611	403,338
New York, New Haven & Hartford R. R.	2,109,562	1,664,913	1,011,473	533,669
Norfolk & Western Ry.	10,038,768	5,796,225	12,098,585	7,459,448
Northern Pacific Ry.	2,101,851	4,046,891	983,689	2,918,230
Pennsylvania R. R.	6,146,830	2,516,207	14,995,510	11,192,561
Pere Marquette Ry.	545,703	296,964	1,311,679	493,885
Pittsburgh & Lake Erie R. R.	834,706	253,027	1,563,979	1,000,784
Reading Co.	1,405,445	842,674	2,443,501	1,879,366
St. Louis-San Francisco Ry.	3,903,766	4,284,792	2,889,387	3,260,251
St. Louis, San Francisco & Texas Ry.	170,012	141,315	169,873	141,037
St. Louis Southwestern Lines	156,052	546,881	55,161	340,631
Seaboard Air Line Ry.	1,023,094	1,552,810	252,867	837,568
Southern Ry.	200,454	335,382	1,075,955	601,855
Southern Pacific Transportation System	4,523,285	5,142,003	1,877,638	2,510,562
Texas & Pacific Ry.	334,881	124,206	738,592	524,202
Union Pacific R. R. (including leased lines)	1,865,245	1,124,342	4,382,141	3,620,930
Wabash Ry.	1,481,862	2,044,533	763,252	1,329,996
Yazoo & Mississippi Valley R. R.	164,760	289,311	7,292	135,914

† Report of receiver or receivers.

‡ Report of trustee or trustees.

§ Under trusteeship, Erie R. R. only.

* Includes Atchison, Topeka & Santa Fe Ry., Gulf, Colorado & Santa Fe Ry., and Panhandle & Santa Fe Ry.

† Includes Boston & Albany, lessor to New York Central R. R.

‡ Includes Southern Pacific Company, Texas & New Orleans R. R., and leased lines. The report contains the following information: "Figures reported above for Southern Pacific Transportation System exclude offsetting debits and credits for rent for leased roads and equipment, and bond interest, between companies included therein. Operations for 1940 of separately operated Solely Controlled Affiliated Companies (excluding results for Southern Pacific Railroad Company of Mexico), not included in above statement, resulted in a net deficit of \$498,784 for the month and \$1,901,145 for the period. These results include \$211,172 for the month and \$844,688 for the period, representing interest on bonds of such companies owned by Southern Pacific Company not taken into income by S. P. Co. and, therefore, not included in the 1940 income results for the System reported above. The combined results for 1940 for Southern Pacific Transportation System and separately operated Solely Controlled Affiliated Companies (excluding S. P. R. Co. of Mexico) amounted to a net deficit of \$1,137,306 for the month and \$5,579,742 for the period. Figures herein given exclude results of S. P. R. Co. of Mexico for the reason that policy was adopted January 1, 1940 of making no further advances to that company, it being required to conduct its operations entirely within its own resources."

* Deficit.

months was \$21,864,778 as compared with a red figure of \$70,443,673 for the first third of 1939.

Fifty-one roads reported net incomes for April while 78 reported net deficits; in April, 1939, there were 37 net incomes and 92 net deficits. For this year's first four months, 58 roads reported net incomes and 71 had deficits, as compared, respectively, with 52 net incomes and 77 deficits during the first third of 1939. The consolidated statement and that showing the net income of roads having annual operating revenues above \$25,000,000 are given in the accompanying tables.

Country's Biggest Express Station Opened in New York on July 15

The Railway Express Agency opened an assorting and delivery station—largest in the country for the handling of express shipments—in New York at an official ceremony on the afternoon of July 15. Occupying the entire block between 41st and 42nd streets and 11th and 12th avenues

(formerly occupied by New York Central team tracks), the station will serve territory on the west side of Manhattan from 28th street to 59th street. To care for the special requirements of the garment industry which centers in this area, the station has been especially designed to handle packages of the type shipped by the garment trade expeditiously.

For purposes of the opening, 105 express station vehicles were simultaneously spotted at the sawtooth platform spaces on both sides of the terminal. The building was officially opened at 3 p. m. when C. J. Ennis, oldest express driver in New York City, with 53 years' service, delivered the first load of express matter to the station.

The new assorting station has no track connections and will be used chiefly for sorting express shipments brought in by pick-up vehicles, and classifying them for delivery to rail-head terminals in the city and New Jersey. C. R. Graham, operating vice-president of the Agency, pointed out that New York express shipments

comprise approximately 25 per cent of the country's total and that the new station will therefore perform a vital function in the Agency's total operations.

Pa. Commission Orders Restoration of Honesdale Passenger Service

Honesdale, Pa., scene of the first run of a steam locomotive in the United States, is to have its single daily passenger train restored. The Pennsylvania Public Utility Commission has ordered the Erie to restore passenger train service between Honesdale and Lackawaxen, a distance of 24.8 mi. and to use equipment "commensurate" with the equipment used prior to the discontinuance of passenger service on September 24, 1939. The principle reason cited for the Commission's order was that several communities along the line would be entirely without means of transportation and it pointed to earnings of coal traffic as sufficient justification for proven losses from passenger operations.

1939 Bus Revenues

Class I motor carriers of passengers reported for 1939 total operating revenues of \$143,108,224 and net operating revenues of \$20,249,003, as compared respectively with a 1938 gross of \$128,054,851 and a net of \$16,541,112, according to a recently-issued compilation prepared by the Interstate Commerce Commission's Bureau of Statistics from 196 reports representing 197 bus operators.

The compilation gives a breakdown of the figures between intercity carriers and local or suburban operators, the latter being those which reported an annual average revenue per passenger carried of less than 20 cents. The intercity carriers last year reported passenger revenues of \$115,382,490, special bus revenues of \$4,344,509 and total operating revenues of \$123,899,080. Their net operating revenue amounted to \$18,809,488, comparing with 1938's net of \$15,923,225 which was derived from a gross of \$112,478,530. Revenue passengers carried in 1939 by the intercity operators totaled 136,656,032 as compared with 122,935,008 in 1938; in addition these carriers transported 2,762,458 persons in 1939 and 2,077,336 in 1938 in charter or special party services.

Statistics of the intercity operations by districts and regions show that the 83 reporting carriers in the Eastern district experienced in 1939 an increase of 18 per cent in gross revenues as compared with 1938; the 24 carriers in the Southern region reported a 4.5 per cent increase, while the gross of the 45 carriers in the Western district was up 5.9 per cent.

36,852 New Freight Cars Put in Service in First Half of 1940

Class I railroads put 36,852 new freight cars in service in the first six months of 1940, according to the Association of American Railroads. This was the largest number installed in any corresponding period since 1930 when 49,208 new cars were put in service. In the first half of 1939, there were 8,628 new freight cars installed.

Of the total number of new freight cars

placed in operation in the six months period this year, coal cars numbered 19,076; box, 16,007; refrigerator, 595; flat, 569; stock, 88 and miscellaneous, 517.

At the same time, the railroads installed in service 180 new locomotives of which 45 were steam and 135 were electric and Diesel-electric. Installed in the first six months in 1939 were 126 new locomotives of which 16 were steam and 110 were electric and Diesel-electric.

Class I railroads on July 1, had 16,933 new freight cars on order, compared with 10,062 on the same day last year. On June 1, there were 15,039 new freight cars on order. Among the new cars on order on July 1, were 9,286 box; 7,005 coal; 245 flat; 50 refrigerator and 347 miscellaneous. The railroads on July 1, also had 124 new locomotives on order of which 97 were steam and 27 were electric and Diesel-electric. On the same day one year ago, there were 108 on order, of which 60 were steam and 48 were electric and Diesel-electric.

Freight cars and locomotives leased or otherwise acquired are not included in the above figures.

R. R. Y. M. C. A. National Assembly

National Assemblies of the Transportation Departments of the Y. M. C. A. of the United States, and Canada were held at Silver Bay on Lake George, N. Y., July 12-14, to receive progress reports from the five commissions that were set up as a result of recommendations made at the Triennial Conference, held at Toronto in November, 1938. The Commission on Mem-

bership, under the chairmanship of J. G. Walber, vice-president, personnel, of the New York Central, reported in detail on the plans for the continental membership campaign which will be held next October. This has already received extensive publicity in the employee and labor union magazines. A handbook or manual has been prepared for the guidance of the campaign workers, and system and local organizations are now being formed.

The Commission on Program and Religious Work, under the chairmanship of A. O. Herman, assistant to general manager of the Baltimore & Ohio, was based on a survey of the activities of all of the associations. It made many specific suggestions and frankly called attention to some of the reasons why associations fall short of reasonable objectives.

The Commission on Personnel, under the chairmanship of H. A. Enochs, chief of personnel of the Pennsylvania, has concerned itself with the problems involved with the employed personnel of the associations. Its activities and recommendations are doing much to raise the standard and efficiency of this personnel.

The Commission on Organization Relationships and Budget, under the leadership of J. B. Parrish, assistant vice-president, Chesapeake & Ohio, has done much to clarify the relationships of the railroad associations with other parts of the general movement and with the railways; its recommended practices as to budget are also bringing about marked improvements.

The Commission on Responsible Citizenship, under the chairmanship of Roy V.

Wright, managing editor, *Railway Age*, presented reasons for the need of prompt and aggressive action in the promotion of practical citizenship training. It pointed out also certain significant trends, and made a number of suggestions based upon what had already been accomplished in citizenship training. Discussion centered around practical difficulties experienced in setting up effective programs to meet the wide variety of conditions encountered in the field.

H. A. Greeniaus, assistant to vice-president and general manager, Eastern Lines, Canadian Pacific, presided over the meeting. About 175 delegates were present. The Assemblies were followed by the International Summer Institute, July 15-20. It centered largely around a series of seminars dealing with the general program as well as the administrative problems of the local associations. It included also a series of addresses on responsible citizenship by Senior Secretary G. K. Roper.

R. Budd Reports To President

(Continued from page 118)

"The entire subject of rail transportation, including special reference to army maneuvers scheduled later this year, is receiving earnest and intelligent consideration by Mr. Budd and his entire staff. Special attention is being given by the consultant to the commissioner of transportation representing the

"Why Not Change Horses?"

"The American people face, in the months immediately ahead, the inescapable necessity of making two fundamental decisions: (1) choice of leadership for the period beginning in 1941, and (2) determination of the program for defending the nation . . . I do not minimize the impelling urgency or the staggering difficulty of the second decision; . . . but I assert . . . with all the emphasis of which I am capable that the . . . choice of leadership is . . . the crucial issue now confronting the American people . . .

"We are now being told that the object of our preparedness program is the defense of The American Way of Life. Rightly or wrongly . . . some millions and perhaps a majority of voters who are as honest and patriotic as their fellows . . . sincerely believe that their definition of The American Way is not accepted by the present leadership in Washington—that, in fact, such leadership reads a very different meaning into the term American Way. . . . Before we embark far upon a program dedicated to the defense of The American Way of Life, we must de-

cide what the term means—what we are going to defend.

" . . . We define our national purpose when we elect our leadership . . . This requirement, of leadership devotion to our national purpose, has an altogether exceptional force with respect to the leadership to be chosen for the years following 1940 . . . If the unavoidable grant of dictatorial powers to the President in wartime and even in the final hectic pre-war preparation is to be in fact temporary, the man who occupies the presidential office . . . must be so completely dedicated to our principle of government that he can be absolutely . . . trusted to restore those powers to the people when the need for his exercising them is passed . . .

"My second main reason for asserting that the choice of leadership is the crucial issue before the people is that the program of defense itself cannot possibly be successful unless it is carried out by leadership having altogether uncommon ability . . . The present dreadful predicament of the allies is in notable degree chargeable to defects in leadership during the critical period

of preparedness. Preparation for a modern war . . . is a colossal business operation . . . To believe that the leadership which happens to be in control . . . should, for the mere reason that it is now in control, be continued . . . is to delude ourselves dangerously. . . .

"'Do Not Change Horses in Midstream' is a slogan frequently used. . . . I flatly deny that we are in midstream. We are on the bank, at the water's edge; . . . Even if we were in midstream, the people would have . . . the inescapable duty . . . to consider the wisdom of changing leaders . . . The leadership on behalf of which the horses slogan is in 1940 advanced was in 1932 making a bold and vigorous effort to bring about a change in leadership even though we were in midstream.

" . . . The people must face the grave question whether the admission—implicit in . . . the entire third term propaganda—that only one man out of a nation of 130 millions is capable of leading the nation is not in truth an admission that we must abandon democratic control and have a totalitarian government. . . ."

From an Article in *Barron's* by
W. L. Crum, Professor of Economics, Harvard University.



... is the essence of the times

The tempo of industry has speeded up. Confronted with the unexpected demands, the railroads are preparing to participate in the defense program by keeping supplies and materials moving and moving rapidly.

To do this the more progressive railroads are ordering new Lima Super Power power capable of handling the increased loads quickly and economically.

LIMA



LOCOMOTIVE WORKS, INCORPORATED, LIMA, OHIO

Great Lakes Carriers in connection with the movement of iron ore, a basic factor in the defense program.

"Four consultants representing the highway users are making a study of defense program requirements in their fields to estimate demands which may be made upon that form of transportation in an emergency. Studies involving the inland waterways and pipe line problems are being surveyed. Action has been taken to interest the various pipe line operators in effecting the most efficient transportation of petroleum and its by-products by pipe line for emergency requirements."

In his further comment President Roosevelt revealed that the conference at which he received the progress reports included considerable talk about the use of buses in time of emergency. It is the aim, he said, to know exactly where every bus is and what would be its status as a possible carrier of troops.

In his aforementioned letter to Mr. Pelley about the car repair program Mr. Budd said in part:

"The continued rising trend of carloadings, as indicated by loading of 752,000 cars in the week ended June 29, 1940, accentuates, in my opinion, the need for full performance by all lines of the repair work necessary to reduce cars in bad order to not more than six per cent, as was agreed. In 1939, you may recall, loadings did not reach present levels until mid-September.

"The Car Service Division report of cars awaiting repairs as of June 1, 1940, shows an increase slightly in excess of 10,000 cars in the number awaiting repairs, comparing June 1 with January 1 of this year. The June 15th figure indicates a reduction in the bad order account compared with June 1 of 7,053 cars. Most of the reduction represents box cars, there being only 505 less open top cars awaiting repairs on June 15 as compared with June 1....

".... There will undoubtedly be little difficulty involved in reducing by October 1 to the six per cent level....

"The railroads as a whole have much at stake in connection with handling of the increased traffic which it appears will be offered, and any failure to do those things which have been agreed upon as necessary may well have results which will be harmful to the industry.

"Undoubtedly you will think the subject of sufficient importance that you will wish to handle it with the railroads.... having more than six per cent bad orders and obtain from them a commitment as to their plans. I will be very much interested in the results of such inquiry as you may make, and if I can assist in any way to the end that the desired performance may be had, I will be very glad to act on any suggestions you may wish to make."

Railways Not Ready in Event of Actual Mobilization

A study of the transport facilities of the United States and their adequacy for national defense, entitled Transportation and National Defense has been published by the Railway Business Association, Chicago, which shows that the burden of such transportation will fall almost entirely upon the

Forwarders Get More Time on Joint Rate Arrangements

Forwarders may now continue until September 1 at least their joint-rate arrangements with motor carriers, the Interstate Commerce Commission having this week postponed the effective date of its outstanding orders which would have required the discontinuance of such arrangements on July 20. These orders in Ex Parte MC-31, Tariffs of forwarding Companies, and No. MC-2200, the Acme Fast Freight status case comprised a much-discussed subject at the recent hearings in connection with the Senate interstate commerce sub-committee's investigation of railroad methods of handling l. c. l. forwarder and express traffic, and on forwarder regulation bills pending before the Senate.

Among these latter were the so-called "stop-gap" bills designed to meet the July 20 deadline by freezing the status quo until permanent legislation could be enacted. But Congress recessed for the Democratic convention without acting on the "stop-gap" measures. Thus the only hope of the forwarders remained with the commission, and it has come through with the postponement.

railways and concludes: "But should national defense require the mobilization of forces in large numbers (to implement the preparedness program in actual defense of the nation) there is ground for apprehension that the total traffic thus resulting would be greater than the capacity of the

supply of locomotives and cars contemplated by the Association of American Railroads—or that could be made available from the small unserviceable inventories that remain.

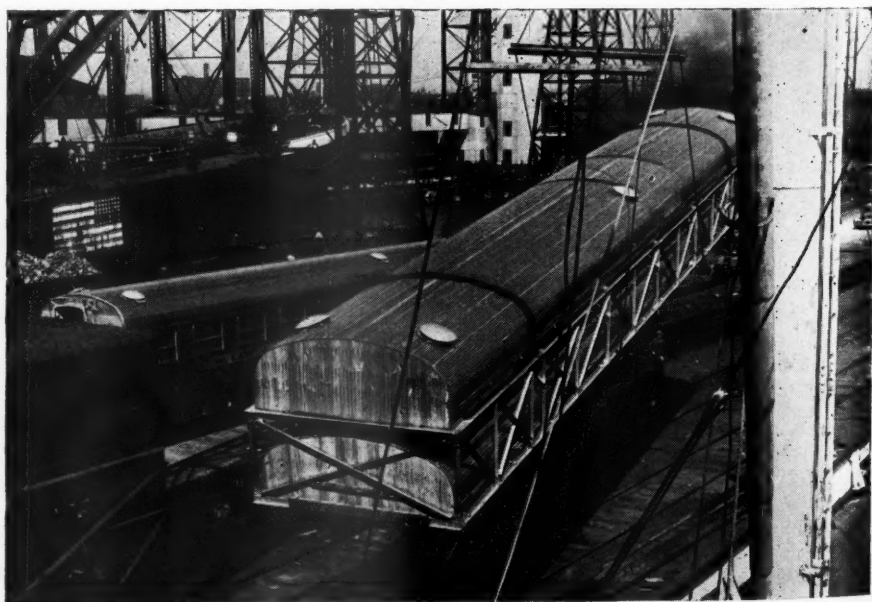
"The railways have assumed the responsibility of providing, at their own cost, a supply of equipment capacity sufficient to sustain any probable peak of commercial traffic, and also that resulting from the present preparedness program. They have assumed this role of responsibility in the defense program, notwithstanding the probability that when the emergency may have passed, they will again possess surplus equipment not required by the needs of commerce; and which they cannot employ profitably under the competitive conditions prevailing in transportation.

"This measure of responsibility which they have voluntarily assumed is a generous one, and certainly is as far as they should be expected to go in sacrificing their security holders for the purpose of maintaining a national defense machine that functions for the benefit of the entire public. It is a greater measure of responsibility than is currently shouldered by other industries, wherein the government is assuming the cost of a plant expansion required by national defense necessities; but which would not be regarded as essential for the peacetime operations of those industries.

"Federal agencies that are responsible for formulating and executing the national defense program should carefully consider the fact that the equipment program now contemplated by the carriers may not prove adequate to the necessities of actual mobilization, and that it should be supplemented by some definite provision for such a contingency.

"Such provision of rail equipment is as much a part of the cost of war, and prep-

* * *

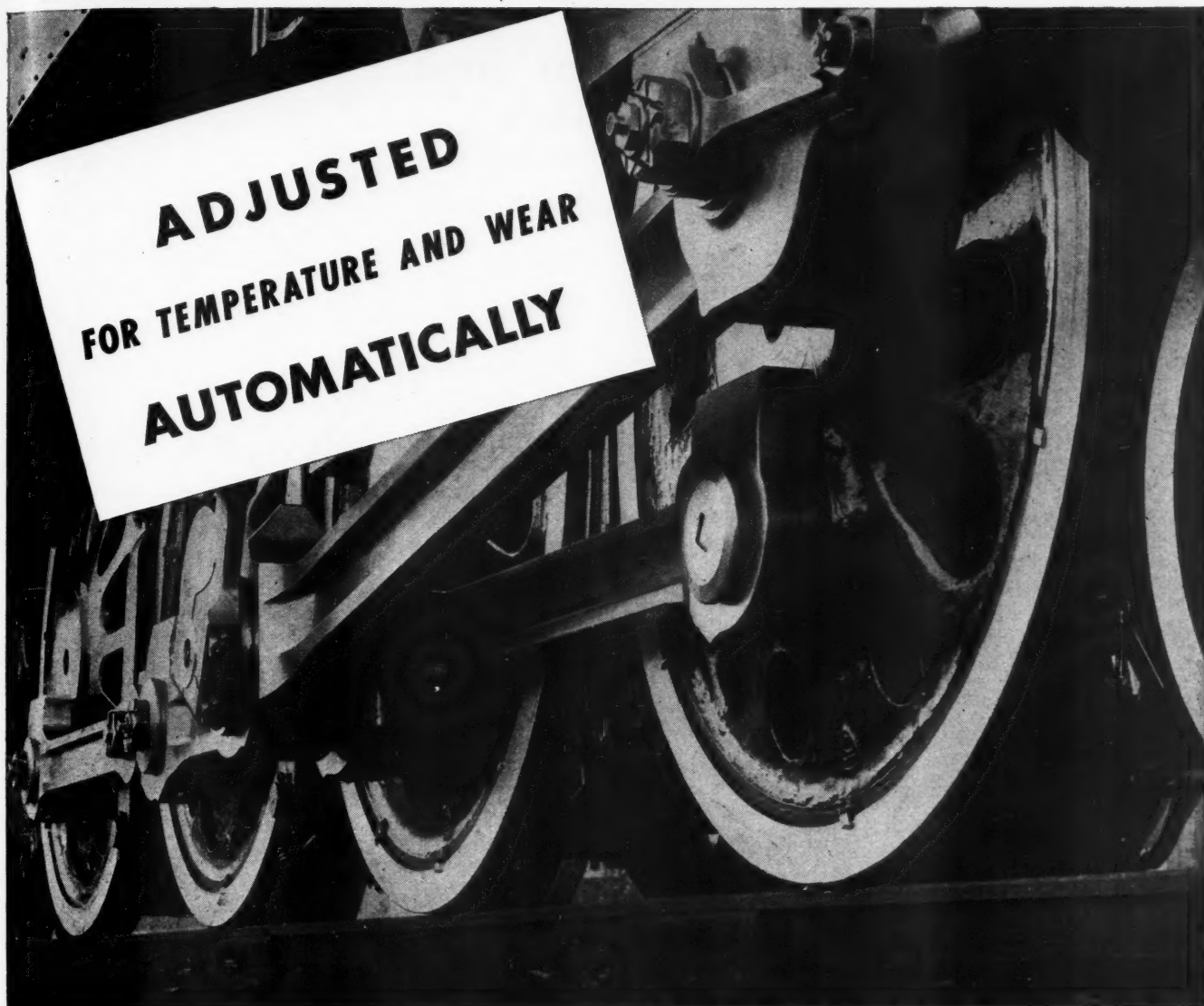


Portuguese Receive 28 American-Built Cars

Safe delivery of 28 stainless steel passenger cars through war-infested waters to the Portuguese National Railways at Lisbon on July 17 has been announced. The cars are here shown being loaded aboard the Franco-Iberian Line freighter "Cypria."

Built by the Edward G. Budd Manufacturing Company, the cars are equipped for travel between Lisbon, Oporto and Irun on the French border. Financing of the order was made through the United States Export-Import Bank, with the assistance of the Bank of Portugal.

Continued on next left-hand page



Variations in the driving box temperature, which in some instances are as much as 250° in short periods of time, no longer affect the fit of these driving box wedges. This ever-present problem has been effectively solved by the application of Franklin Automatic Compensators and Snubbers. Now, this locomotive leaves the roundhouse with a snug fit; as the driving box becomes heated the wedge is *automatically* pushed down, keeping a constant, pre-determined adjustment at all times. As the driving box cools, the wedge *automatically* compensates for the contraction. In addition, abnormal shocks are taken care of by a heavy outer spring that acts as a cushion. » » » For constant, accurate adjustment . . . easier riding, prevention of pounds . . . at any temperature . . . apply Franklin Automatic Compensators and Snubbers.

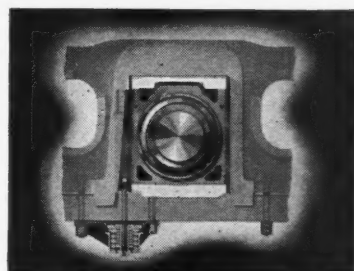


FRANKLIN RAILWAY SUPPLY COMPANY, INC.

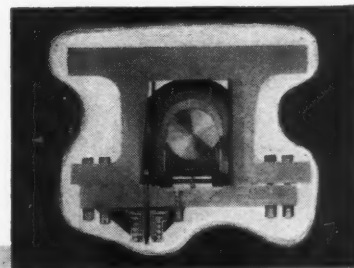
NEW YORK

CHICAGO

MONTREAL



ABOVE: Franklin Automatic Compensator and Snubber for Roller Bearing Driving Box application. BELOW: Franklin Automatic Compensator and Snubber for Friction Bearing Driving Box application.



aration of war, as emergency building of shipping in 1918, or the expansion of airplane factories in 1940, or the sinking of government moneys in highways and waterways for the alleged purpose of promoting the national defense.

"In making provision for the contingencies of actual mobilization, recognition should be given to the fact that the present capacity of plants producing railway equipment has been greatly curtailed by the reduced demands of ten years, that a portion of that existing capacity is already absorbed by orders accruing under our general preparedness program and resulting from the war in Europe; and that some time would be required to restore these plants to anything like the pre-depression capacity for the output of railway equipment."

1939 Truck Revenues

Class I motor carriers of property reported for 1939 total operating revenues of \$425,373,099, operating expenses of \$404,709,569 and net operating revenue of \$20,663,530, according to a recently-issued compilation prepared by the Interstate Commerce Commission's Bureau of Statistics from 1,104 reports representing 1,105 common and contract truckers. Of the aggregate gross revenues, common carriers reported \$351,242,628, and contract carriers \$66,998,457.

Explaining that the Class I motor carriers are those with annual operating revenue of \$100,000 or more, the compilation included another footnote which said that "the total revenues of Class I carriers of property are probably less than half of the grand total for all motor carriers of property whose rates and services are subject to the jurisdiction of the Interstate Commerce Commission." The figures given above were taken from the compilation's Table I which was prepared from reports of 1,013 intercity carriers and 92 carriers "the services of which are predominantly local in character." Figures available did not permit the preparation of a comparable compilation for 1938, but a comparison in that connection is made in another table which covers the reports of 714 intercity truckers and 87 local operators.

The 714 intercity truckers reported 1939 gross revenues of \$309,249,523, an increase of 27.6 per cent above 1938's gross of \$242,344,589. Meanwhile their net operating revenue rose 115.1 per cent—from \$7,252,671 in 1938 to \$15,600,926 in 1939. In the New England region the increase in gross was 19.4 per cent; the rise in net 457.8 per cent. Respective increases for the other regions were as follows: Middle Atlantic, 23.3 per cent and 174.6 per cent; Central, 36.2 per cent and 184.1 per cent; Southern, 37.2 per cent and 67.9 per cent; Northwestern, 19.2 per cent and 43.2 per cent; Mid-Western, 30.5 per cent and 279.3 per cent; Southwestern, 20 per cent and 67.5 per cent; Rocky Mountain, 20 per cent and 17.2 per cent; Pacific, 10.5 per cent and 27 per cent.

The 87 local carriers for which comparable figures were available reported a 1939 gross of \$24,311,848, an increase of 8.3 per cent above 1938's \$22,452,850. Their net rose 213.8 per cent, from \$302,083 in 1938 to \$947,974 in 1939.

Equipment and Supplies

LOCOMOTIVES

THE BALTIMORE & OHIO has purchased 25 Diesel-electric switching locomotives, nine of 1,000-hp. and sixteen of 600-hp., from the Electro-Motive Corporation, La Grange, Ill.

THE ILLINOIS CENTRAL has ordered one 2,000-hp. Diesel-electric locomotive for streamlined passenger service between Chicago and Florida from the Electro-Motive Corporation, La Grange, Ill.

THE ATCHISON, TOPEKA & SANTA FE has ordered ten 4-8-4 type steam locomotives from the Baldwin Locomotive Works, Philadelphia, Pa. Inquiry for this order was announced in the *Railway Age* of June 29.

FREIGHT CARS

THE NORFOLK & WESTERN has ordered 50 fifty-ft. box cars, from the Greenville Steel Car Company.

THE AMERICAN REFRIGERATOR TRANSIT COMPANY will build 100 refrigerator cars at its shops in St. Louis, Mo.

THE NORFOLK & WESTERN has placed orders for 1,000 hopper coal cars, dividing the order equally between the Virginia Bridge Company and the Bethlehem Steel Company.

THE VIRGINIAN has placed an order with its own shops for the construction of 500 hopper cars of 50 tons' capacity. It was reported in the *Railway Age* of June 8 that prices for materials to be used in these cars had been received.

THE AMERICAN CAR & FOUNDRY COMPANY has been authorized by the Interstate Commerce Commission in a report by Commissioner Johnson to construct 10 fusion-welded tank cars for experimental service in the transportation of petroleum products.

THE GENERAL AMERICAN TRANSPORTATION CORPORATION has been authorized by the Interstate Commerce Commission in a report by Commissioner Johnson to construct one fusion-welded tank car for experimental service in the transportation of caustic soda solution.

PASSENGER CARS

Mystery Order for 24 Coaches by Unnamed Eastern Road

A railroad in the eastern section of the country has ordered 24 lightweight streamlined, stainless steel coaches from the Edward G. Budd Manufacturing Company, but officers of the builder said "they were not at liberty to announce the purchasers". The cars will be built this summer in the Budd Philadelphia (Pa.) plant for delivery in the fall.

THE ILLINOIS CENTRAL has ordered seven streamlined passenger cars, one observation-lounge car, one diner, four coaches and one combination coach for a streamlined passenger train to be placed in Chicago-Florida service about December 1, from the Pullman-Standard Car Manufacturing Company, Chicago.

IRON AND STEEL

THE READING has ordered 100 tons of 100-lb. rail from the Bethlehem Steel Company.

Supply Trade

Burt T. Anderson, general sales manager of the Union Switch & Signal Company, at Swissvale, Pa., has been appointed transportation research director. L. C. Ritterbush, assistant district manager at New York, has been appointed general sales manager at Swissvale, succeeding Mr. Anderson.

Mowry E. Goetz has been appointed district manager at Chicago for the Republic Steel Corporation, Cleveland, Ohio, succeeding J. L. Hyland, who has been appointed district manager at Cleveland, and F. R. Ward has been appointed assistant district manager at Chicago.

Gilbert W. Kahn, whose election as a director and member of the executive committee of the Union Asbestos & Rubber Company, Chicago, was announced in the *Railway Age* of July 13, has been elected also chairman of the executive committee. Mr. Kahn attended Groton school and graduated from Princeton University in



Gilbert W. Kahn

1926. After graduation he went with the Equitable Trust Company, New York, and a year later he went to Europe for a year and a half to study banking in London, Paris and Berlin. Upon his return Mr. Kahn joined the firm of Kuhn, Loeb & Company, New York, becoming a partner in 1931. In his capacity as director and chairman of the executive committee, he will take an active interest in the Union Asbestos & Rubber Company.



GRANDFEY VIADUCT

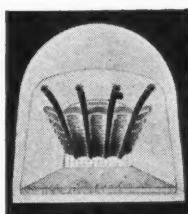
SWITZERLAND

One of the most beautiful viaducts on the Lausanne-Berne line of the Swiss Federal Railroads in Switzerland is the Grandfey Viaduct near Fribourg. This bridge, which was originally built as a steel viaduct and was rebuilt in 1927, is 1270 ft. long and stands at a height of 262 ft. above the normal water level of the river beneath. * * * For 31 years the Security

Sectional Arch has been serving the American Railroads. From its introduction, up to the present day, American Arch Company Engineers have continuously improved the Arch, until today it is the standard on American Railroads. But a Security Sectional Arch is not enough. To realize its true efficiency, every brick must be in place.

**HARBISON-WALKER
REFRACTORIES CO.**

Refractory Specialists



**AMERICAN ARCH CO.
INCORPORATED**

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*Locomotive Combustion
Specialists*

Construction

CHICAGO & NORTH WESTERN.—A contract amounting to \$181,892 has been awarded by the Board of Local Improvements of the Village of Winnetka, Ill., to the George Sollit Construction Company, Chicago, for the construction of permanent stations and platform facilities in connection with the Winnetka grade separation project. This project was described on page 966 of the *Railway Age* of December 31, 1938.

GRAND TRUNK WESTERN & NEW YORK CENTRAL.—The Michigan State Highway Department has awarded a contract amounting to \$160,095 to Bryant & Detwiler Company, Detroit, Mich., for the construction of a new bridge for three tracks, two Grand Trunk and one New York Central, over Michigan avenue in Detroit. The new bridge will consist of two three-track semi-through girder spans, each 69 ft. 10 in. long, which will cross Michigan avenue at an angle of approximately 62 deg., supported on a reinforced concrete center pier and abutments. The work includes also the construction of temporary trestles and the removal of the old bridge.

GREAT NORTHERN.—J. A. Terteling & Sons of Boise, Idaho, were the low bidders on Schedule 1 (Kettle Falls, Wash., to Williams) and Schedule 2 (Kettle Falls to Boyds) with bids of \$645,462 and \$398,775, respectively, in connection with the relocation of Great Northern tracks to be flooded or otherwise rendered unserviceable in the storage reservoir area above the Grand Coulee dam. The principal quantities in this work and a brief description were published on page 1141 of the *Railway Age* of June 22.

ILLINOIS CENTRAL.—A contract has been awarded the Chris Paschen Corporation, Chicago, for cleaning and tuck-pointing the exterior and caulking around windows at the Central Station building Chicago. In addition, the interior of the station is being redecorated with company forces and new faces have been installed on the clock tower. The total cost of the improvements will be about \$25,000.

ILLINOIS CENTRAL.—A contract has been awarded the Knickerbocker Roofing & Paving Co., Chicago, for repairs and re-coating of the roofing on all shop buildings at the Paducah shops, Paducah, Ky. Another contract has been awarded to the H. J. Yeldham Company, Chicago, for making repairs to monitor sash, gutters, downspouts, flashing and other sheet metal work on the roofs of these buildings. The total cost of this work will be about \$50,000.

KANSAS CITY SOUTHERN.—A contract has been awarded the Massman Construction Company, Kansas City, Mo., for the construction of the substructure for a new bridge over the Neches river at Beaumont, Tex. The new bridge will consist of a 240-ft. 6 in. vertical lift span with tower spans 72 ft. long, which will replace an

old swing span with pile trestle approaches. The pile trestle approaches will be shortened and used for the new bridge. The lift span will provide a navigation channelway 200 ft. wide, as compared to 92 ft. for the old swing span, and a vertical clearance of 150 ft. above mean low water level when the span is fully raised. The new substructure will consist of four piers, each composed of two steel pile caissons driven outside of the present structure and connected with a heavy reinforced concrete cap. Contracts for the superstructure will be awarded soon. The total cost of the project will be approximately \$350,000.

MISSOURI-KANSAS-TEXAS.—A contract has been awarded Cage Brothers & L. A. Turner, San Antonio, Tex., for the construction of a single track railroad bridge over State highway No. 95 south of Granger, Tex. The bridge will consist of three 48-ft. 4 in. I-beam spans supported by reinforced concrete spread footing type piers and reinforced concrete abutments founded on steel piling, and will have a metal floor and ballasted deck. The structure will cross the highway at an angle of 45 deg. and will provide a clear roadway width of 28 ft. and a vertical clearance of 19 ft. 6 in. for highway traffic. The cost of the bridge, including work to be done by the railroad, will be about \$40,440.

MISSOURI-KANSAS-TEXAS AND KANSAS, OKLAHOMA & GULF.—The State Highway Commission of Oklahoma has awarded a contract to O. J. Pharaoh, Henryetta, Okla., for an overhead highway bridge for U. S. highway No. 70 over two main tracks of the M-K-T, and one main track and three side tracks of the K. O. & G. in the north edge of Durant, Okla. The bridge will be 432 ft. long and will consist of I-beam spans on reinforced concrete piers and abutments. It will provide a roadway 26 ft. wide and sidewalks 4 ft. wide on each side. The total cost of the project, including work to be done by railroad forces, will be approximately \$82,500.

UNION PACIFIC.—Contracts totaling \$233,024 have been awarded Frank M. Kenney, Denver, Colo., by the Wyoming State Highway Department for the construction of three grade separation structures, A street viaduct, C street subway and M street subway in Rock Springs, Wyo. The A street viaduct will be 525 ft. long and will consist of one 94-ft. deck plate girder span over six tracks with several steel beam span approaches on each end, supported by steel bents on concrete pedestals and concrete abutments. The C street subway is a pedestrian subway passing under seven tracks. It will be constructed of reinforced concrete and will be 110 ft. long and provide 8 ft. by 8 ft. clear opening. The M street subway will pass under 10 tracks and will consist of a single steel beam span 36 ft. 6 in. long for all tracks, with a wrought iron plate floor and ballast deck, resting on reinforced concrete abutments. This subway will provide a concrete roadway with a 30-ft. clear width and 14-ft. vertical clearance and two sidewalks 6 ft. wide extending through the abutments.

Financial

BOSTON & MAINE.—*Operating Agreement.*—This company and the Vermont Valley have been authorized by Division 4 of the Interstate Commerce Commission to extend from July 1, 1940 to July 1, 1950, an agreement between these companies providing for the operation of the property of the latter by the former.

CHESAPEAKE & OHIO.—*Equipment Trust Issue Awarded.*—On July 15, the Chesapeake & Ohio awarded an issue of \$2,500,000 of one- to ten-year 1¾ per cent equipment trust certificates to Blythe & Company, Inc., at a price of 101.777, which represents an interest cost to the company of about 1.41 per cent. The certificates, to be dated August 1, 1940, will be payable in 10 equal annual installments. The funds will be used to finance in part the purchase of new equipment, including 1,000 box cars and 100 cabooses. Blythe & Co. have offered the issue of \$2,500,000 certificates at prices to yield from 0.25 per cent for 1941 maturities to 1.75 for certificates maturing in 1950.

CHICAGO & NORTH WESTERN.—*Abandonment.*—This company has asked the Interstate Commerce Commission for authority to abandon its Vesta branch extending from Wanda, Minn., to Wabasso, 5.6 miles.

DENVER & RIO GRANDE WESTERN.—*Abandonment.*—This company has asked the Interstate Commerce Commission for authority to abandon a line extending from Leadville, Colo., to valuation station 158 plus 86, 2.9 miles.

DENVER & RIO GRANDE WESTERN.—*Equipment Trust Certificates.*—This road has awarded an issue of \$1,260,000 of 2 per cent equipment trust certificates to Blythe & Co., New York, on a bid of 100.277, at an interest cost to the carrier of 194.96. The certificates mature in ten monthly installments September 1, 1941 to 1950.

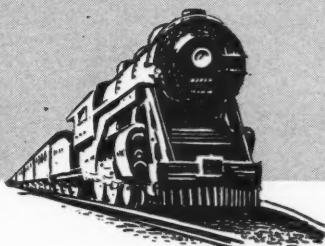
DENVER & RIO GRANDE WESTERN-COLORADO & SOUTHERN.—*Abandonment, Construction and Joint Operation.*—The Denver & Rio Grande Western has asked the Interstate Commerce Commission for authority to abandon that portion of its Rouse branch extending from Mayne Junction, Colo., to Monson, 2.4 miles. In the same application the D. & R. G. W. and the Colorado & Southern have asked the commission for permission to construct and operate over, under a contract for joint use, 1,424 ft. of line at Monson, Colo., between the D. & R. G. W.'s Rouse branch and the main line of the C. & S.

EAST BERLIN.—*Abandonment.*—This company has been authorized by Division 4 of the Interstate Commerce Commission to abandon its entire line extending from Berlin Junction, Pa., to East Berlin, seven miles.

ERIE.—*Objections Must Be Filed by August 6.*—August 6 has been set by the

DEPENDABILITY

means economy



A back-shop repair job on your superheater unit is not economical in the long run. Inside steam areas vary depending upon the character of the job. The moment this occurs you have changed the design of your superheater and have lost a portion of the full effectiveness of your "Tailor Made" superheater.

Elesco REmanufactured superheater units, with their machine-die-forged return bends, not only assure the same smooth surfaces as the original, but also give the maximum mileage life to your unit.



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federal court of Cleveland, Ohio, as the date by which all objections must be filed against the I. C. C. reorganization plan for the Erie. Objections will be referred to William L. West, special master, for hearing on August 12 in the federal court at Cleveland.

ERIE.—Modification of Reorganization Plan.—The Interstate Commerce Commission has issued a supplemental report modifying in certain particulars its final plan of reorganization for this company under section 77 of the Bankruptcy Act. The modifications do not change the total capitalization, the fixed charges, or the distribution of new securities.

One of the most important changes has to do with the preferred stock. The commission disapproved full accumulation of dividends for the preferred, but allowed partial accumulations. Back dividends on preferred stock must all be paid before any dividends can be paid on common stock. Before any provision of preferred stock can be materially altered there must be affirmative approval of two-thirds of the preferred stock. In dissolution, winding up or liquidation, preferred stockholders would receive the par value of the shares, plus accumulated dividends, before there would be any distribution to common stockholders.

Also, the maturity of the collateral trust notes is changed from a fixed maturity of 15 years from January 1, 1940, to a date not earlier than January 1, 1953.

INDIANA.—Abandonment.—This company has been authorized by Division 4 of the Interstate Commerce Commission to abandon the following segments of its interurban electric lines: (1) from Fort Wayne, Ind., to Bluffton, 22.6 miles; (2) from Bluffton, Ind., to Indianapolis, and a branch line from Muncie, Ind., to New Castle, 114.9 miles. At the same time the company was authorized to abandon operation under trackage rights over tracks of the Indiana Service Corporation in Fort Wayne, 3.2 miles. Action on the application to abandon operation over tracks of the Service Corporation in Indianapolis, four miles, was deferred.

MISSOURI PACIFIC.—Abandonment.—This company has asked the Interstate Commerce Commission for authority to abandon its Granby branch, extending from Atlas, Mo., to Granby, 14.7 miles, and from Duenweg Junction, Mo., to Duenweg, one mile.

MISSOURI PACIFIC.—Abandonment Application Dismissed.—Acting on the request of this company, Division 4 of the Interstate Commerce Commission has dismissed its application for authority to abandon the operation of a car ferry between Ivory Station, St. Louis County, Mo., and East Carondelet, St. Clair County, Ill.

MOBILE & OHIO.—Bond Deposit.—This road has informed all holders of its bonds and notes favoring its reorganization and merger with the Gulf, Mobile & Northern, to deposit their securities with the New York Trust Company, New York, not later than July 25. Foreclosure sale of the road

has been ordered to be held at Mobile, Ala., on August 1.

NEW YORK, NEW HAVEN & HARTFORD.—Abandonment by the Old Colony.—The Old Colony and the New York, New Haven & Hartford, respectively, have been authorized by Division 4 of the Interstate Commerce Commission to abandon a portion of a line and the operation thereof extending from Eastondale, Mass., to South Easton, 3,300 ft.

ST. LOUIS SOUTHWESTERN.—Petition for Interest Denied.—On July 10, Federal Judge Charles B. Davis, St. Louis, Mo., denied the petition of the Bankers Trust Company, as trustee of the second mortgage bonds, for payment of interest on the second mortgage bond certificates. The order stated that funds are not now available without impairing the current cash position of the railroad trustee.

ST. LOUIS SOUTHWESTERN.—Postponement of Oral Argument.—The date of the oral argument of this company's reorganization case under section 77 of the Bankruptcy Act before the Interstate Commerce Commission has been postponed from July 22 to October 10.

TENNESSEE CENTRAL.—Extension of R. F. C. Loan.—This company has asked the Reconstruction Finance Corporation to extend from August 1, 1940, to April 1, 1950, the time of payment of a loan for \$4,992,906.

TRENTON - PRINCETON TRACTION.—Permission to Abandon.—The New Jersey Board of Public Utility Commissioners has authorized the Trenton-Princeton Traction Company to abandon its entire line between Trenton, N. J., and Princeton, 12.6 mi., together with a branch line within the city of Trenton, 0.6 mi. Trenton-Princeton is an electric line operating for both freight and passengers, wholly-owned by the Reading.

WASHINGTON, BRANDYWINE & POINT LOOKOUT.—Abandonment.—This company has asked the Interstate Commerce Commission for authority to abandon a line extending from Mechanicsville, Md., to Forest Hall, 2.3 miles.

WICHITA FALLS & SOUTHERN.—Acquisition.—This company has asked the Interstate Commerce Commission for authority to acquire and consolidate the Wichita Falls & Southern Railway and the Wichita Falls, Ranger & Fort Worth, both of which companies are now leased lines of the Wichita Falls & Southern. The stock of both companies, which is owned by the W. F. & S., will be surrendered and cancelled in exchange for a deed for the properties.

Average Prices of Stocks and Bonds

	July 16	Last week	Last year
Average price of 20 representative railway stocks..	27.70	27.73	30.38
Average price of 20 representative railway bonds..	57.53	56.57	59.67

Dividends Declared

Wheeling & Lake Erie.—Prior Lien, \$1.00, quarterly; 5½ Per cent Preferred, \$1.37½, quarterly, both payable August 1, to holders of record July 25.

Railway Officers

FINANCIAL, LEGAL AND ACCOUNTING

Colonel George E. Fogg, attorney of the Maine Central, has been promoted to general solicitor of the Maine Central and the Portland Terminal Company, with headquarters at Portland, Me., succeeding



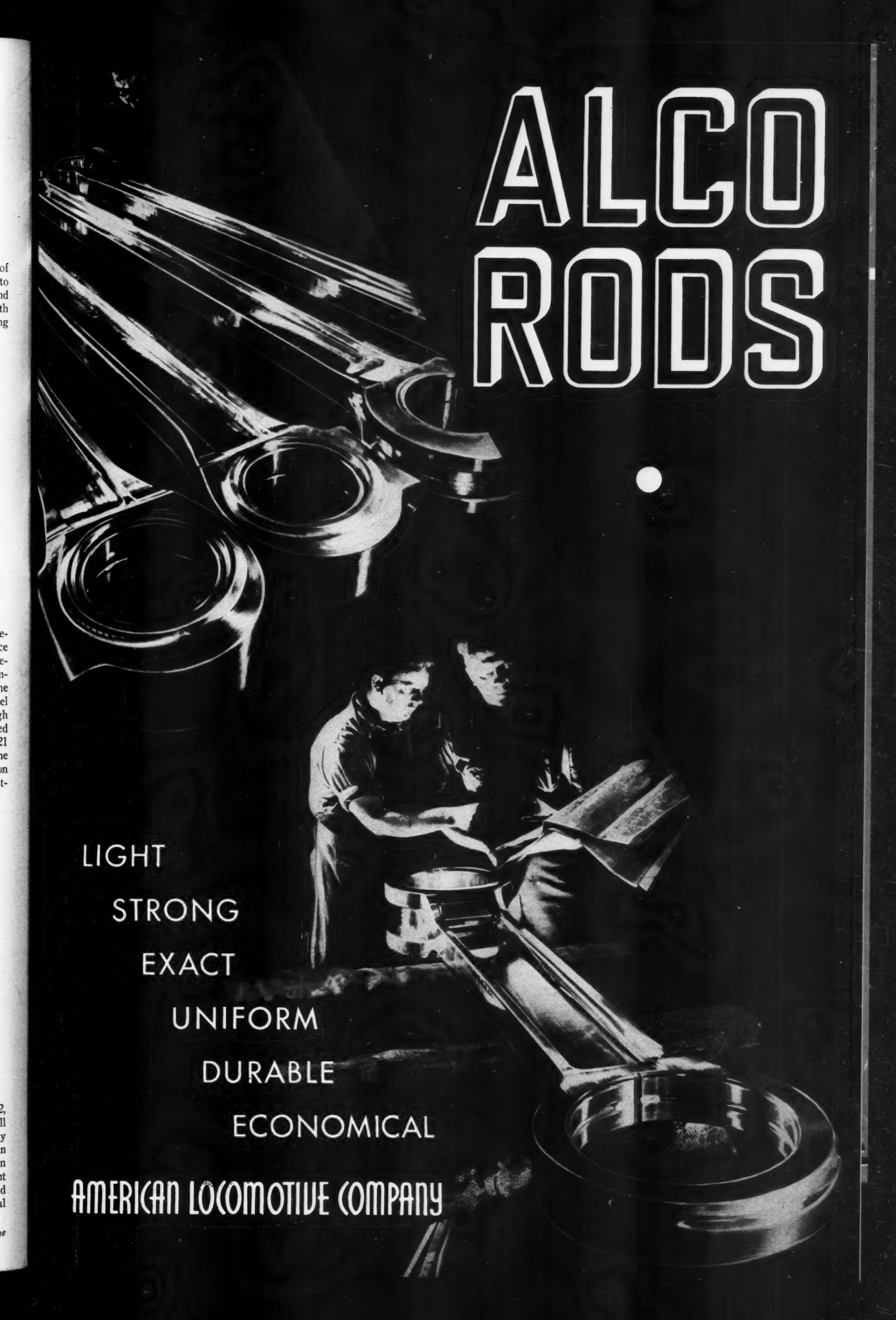
Col. George E. Fogg

Charles H. Blatchford, who has resigned. **E. Spencer Miller**, commerce counsel of the Boston & Maine, has resigned from that position to become general attorney of the Maine Central and the Portland Terminal Company. Colonel Fogg is a graduate of Portland High School and Bowdoin College. He entered the service of the Maine Central in 1921 as assistant solicitor. In January, 1926, he was promoted to attorney, which position he held at the time of his recent appointment.



E. Spencer Miller

Mr. Blatchford was born on January 2, 1874, at Evanston, Ill. He attended Cornell University and Northwestern University Law School and entered railroad service in October, 1910, as attorney for the Boston and Maine. In September, 1913, he went with the Maine Central and the Portland Terminal Company as attorney and general



ALCO RODS

LIGHT

STRONG

EXACT

UNIFORM

DURABLE

ECONOMICAL

AMERICAN LOCOMOTIVE COMPANY

solicitor, and in October, 1913, was appointed clerk of the Corporation, which position he will retain.

Mr. Miller was graduated from Dartmouth College in 1931 and from the Harvard Law School in 1934. He has been with the Boston & Maine since April 5, 1937, when he was appointed assistant attorney. He was promoted to commerce counsel in October, 1939.

Walter McFarland, general solicitor of the Chicago, Burlington & Quincy has been promoted to assistant general counsel, a newly created position, with headquarters



Walter McFarland

as before at Chicago, and **Eldon M. Martin**, general attorney, has been advanced to general solicitor, succeeding Mr. McFarland.

Mr. McFarland was born at Washington, D. C., on March 30, 1888, and graduated from Georgetown University Law School in 1911. He began the general practice of law in the District of Columbia on October 1, 1911, and was appointed a special agent in the Bureau of Inquiry of the Interstate Commerce Commission on February 11, 1913. On April 8, 1913, he was promoted to assistant attorney, and on June 1, 1914, he was appointed confidential clerk to one of the commissioners. He was advanced to attorney on Decem-



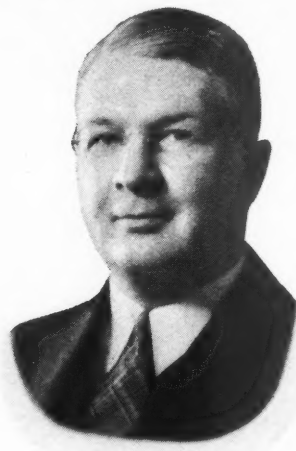
Eldon M. Martin

ber 1, 1914, and given the official designation of examiner. On June 1, 1920, he was appointed assistant counsel for the com-

mission, but left that position to become general attorney for the C. B. & Q., with headquarters at Chicago on July 1, 1924. He was promoted to general solicitor in November, 1938.

Mr. Martin was born at Cottonwood Falls, Kan., and graduated from the University of Kansas in 1924. He entered railway service in 1924, in the law department of the Atchison, Topeka & Santa Fe, and began the study of law at Kent College of Law, graduating from that school in 1929. He was admitted to the bar in California in 1929, and entered law practice in San Francisco, Cal., in June of that year. Mr. Martin returned to Chicago in March, 1931, entering the service of the C. B. & Q., as assistant general attorney, with headquarters at that point, and in November, 1938, he was promoted to general attorney.

A. R. Seder, whose promotion to general auditor of the Chicago & North Western, with headquarters at Chicago, was announced in the *Railway Age* of July 6, was born in Minneapolis, Minn., on September 25, 1889, and graduated from the University of New Mexico in 1911. He entered railway service in May, 1918, as a bookkeeper for the Chicago, St. Paul, Minneapolis & Omaha (a subsidiary of the Chicago & North Western), at St.



A. R. Seder

Paul, Minn., and in May, 1920, he was promoted to general accountant. In April, 1924, he was appointed auditor of disbursements and in January, 1929, he was advanced to general auditor. Mr. Seder was appointed comptroller in May, 1936, and on November 1, 1938, he was appointed also assistant comptroller of the North Western, with headquarters at Chicago, the position he held until his promotion to general auditor, which was effective July 1.

OPERATING

W. H. Wood has been appointed trainmaster on the Missouri Pacific at Nevada, Mo., succeeding **B. C. Murphy**, who has retired.

W. B. Frame has been appointed assistant superintendent on the Canadian National at Prince Albert, Sask., succeeding **D. C. Gough**, whose promotion to superintendent, with headquarters at Kamloops,

B. C., was announced in the *Railway Age* of May 11. **R. H. Robertson**, assistant chief clerk at Winnipeg, Man., has been promoted to assistant superintendent at that point, a newly created position.

G. H. Nolan has been appointed trainmaster on the Minnesota division of the Minneapolis, St. Paul & Sault Ste. Marie, with headquarters at Enderlin, N. D.

R. J. Breton, trainmaster on the Atchison, Topeka & Santa Fe at Fresno, Cal., has been appointed general inspector of transportation, a newly created position, with headquarters at Los Angeles, Cal.

L. J. Kempf, general yardmaster of the Atlantic Coast Line at Tampa, Fla., has been appointed trainmaster, north end, Tampa district, with headquarters at Lakeland, Fla.

N. E. McKinnon, assistant superintendent of the Bingham & Garfield, has been appointed superintendent, with headquarters as before at Magna, Utah, a change of title.

A. Jardine has been appointed superintendent of the Temiskaming & Northern Ontario, with headquarters at Englehart, Ont., succeeding **W. A. Griffin**, who has been assigned to special duties.

Henry McNeer, assistant general yardmaster on the Illinois Central at Memphis, Tenn., has been promoted to trainmaster of the Memphis terminal, with the same headquarters, succeeding **E. Bodamer**, who has retired.

S. L. Dolan has been appointed superintendent of the Bridge Railway (operating organization for the San Francisco-Oakland bridge), with headquarters at San Francisco, Cal., succeeding **F. E. Sullivan**, deceased.

F. L. Dobson, general fuel manager of the Pennsylvania, has been appointed acting superintendent of the Philadelphia Terminal division, with headquarters as before at Philadelphia, Pa., succeeding **H. E. Wolcott**, who has been granted a leave of absence because of illness.

J. J. Daley, division superintendent of the New York Central at Syracuse, N. Y., has been transferred to the Ohio Central division, with headquarters at Columbus, Ohio, succeeding **K. A. Borntrager**, whose appointment as superintendent of the Rochester division at Rochester, N. Y., was announced in the *Railway Age* of June 29.

TRAFFIC

Rex Nelson Miller, chief clerk in the joint offices of the Boston & Maine and Maine Central, has been promoted to general agent of these roads, with headquarters as before at Caribou, Me., succeeding **G. L. Perkins**, deceased.

Reid M. Rowan, general agent on the Texas & Pacific at Phoenix, Ariz., has been promoted to district manager of perishable freight service at Los Angeles, Cal., succeeding **A. N. Overall**, who has been advanced to assistant traffic manager



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at Los Angeles, relieving **N. L. Rankin**, who has been appointed special traffic representative at Dallas, Tex. **A. C. Tanksley**, perishable freight agent at Los Angeles, has been appointed general agent at Phoenix, relieving Mr. Rowan and **J. S. McKenna**, general agent at San Francisco, Cal., has been appointed perishable freight agent at Los Angeles, succeeding Mr. Tanksley. **J. H. Dessen** has been appointed general agent at San Francisco replacing Mr. McKenna.

E. O. Hewlett has been appointed assistant general passenger agent of the Atlantic Coast Line, with headquarters at Wilmington, N. C., and **Frank E. Masi** has been appointed assistant general passenger agent, with headquarters at Washington, D. C.

A. J. Maloney, assistant to the general freight agent on the St. Louis Southwestern at St. Louis, Mo., has been promoted to assistant general freight agent at that point, succeeding **C. G. Rausch**, who resigned to accept a position with the Commodities Credit Corporation, at Washington, D. C.

W. C. Sawyer, foreign freight agent for the Norfolk & Southern, has been promoted to general foreign freight agent, with headquarters as before at New York, succeeding **W. D. Dimmitt**, who has resigned. **L. H. Butler**, assistant foreign freight agent, has been appointed foreign freight agent, with headquarters as before at Norfolk, Va.

J. E. Cornell, district passenger agent for the Louisville & Nashville at New York, has been promoted to general eastern passenger agent, with the same headquarters, succeeding **L. A. Binkley**, whose promotion to assistant general passenger agent, with headquarters at Louisville, Ky., was announced in the *Railway Age* of July 6.

E. W. Bennett, general agent for the Chicago, New York & Boston Refrigerator Company (subsidiary of the Canadian National) at Milwaukee, Wis., has been promoted to traffic manager, with headquarters at Chicago, succeeding **J. M. Parra-more**, whose promotion to president and general manager, with the same headquarters, was announced in the *Railway Age* of April 20.

ENGINEERING AND SIGNALING

Seymour H. Knight, supervisor of bridges and buildings on the Northern Pacific at Fargo, N. D., has been promoted to supervisor of work equipment, with headquarters at St. Paul, Minn.

Roy Lumpkin, who for the past year has been supervising details of maintenance of way activities in the office of the assistant chief operating officer of the Chicago, Rock Island & Pacific at Chicago, has been promoted to assistant maintenance engineer, with the same headquarters, and with jurisdiction over maintenance of way and timber preservation. Mr. Lumpkin succeeds, in addition to his other duties, to the duties of **Charles F. Ford**, supervisor

of ties and timber, whose death on June 9, was announced in the *Railway Age* of June 15. Mr. Lumpkin was born in Spring Garden, Mo., on May 3, 1891, and entered



Roy Lumpkin

railway service at Eldon, Mo., in 1911, as a timekeeper in the maintenance of way department. He later served in various capacities in the office of the engineer of maintenance of way of the First district at Des Moines, Iowa; in the office of the general manager at Kansas City, Mo., and at Chicago in the office of the assistant chief operating officer in charge of engineering and maintenance of way.

MECHANICAL

James E. Hall has been appointed traveling engineer of the Union Railroad Company, with headquarters at Bessemer, Pa.

John C. Fox has been appointed electrical engineer of the Virginian, with headquarters at Princeton, W. Va., succeeding **J. E. Sharpley**, deceased.

F. O. Wright, general foreman of the Chesapeake & Ohio, has been appointed master mechanic, Hocking division, with headquarters at Columbus, Ohio, succeeding **J. E. Davis**, retired.

C. P. Brooks, supervisor of apprentices of the Erie, has been appointed mechanical engineer, with headquarters as before at Cleveland, Ohio, succeeding **F. S. Brown**, who is retiring after 48 years of continuous service.

SPECIAL

Joseph P. Andres, acting chief of police of the Delaware & Hudson, has been appointed chief of police.

OBITUARY

Edward James Worth, assistant superintendent of the Saskatchewan district of the Canadian Pacific, with headquarters at Regina, Sask., died on July 15, at the age of 51.

August E. Capdevielle, assistant treasurer of the Southern Pacific Lines in

Texas and Louisiana, with headquarters at New Orleans, La., died on July 13, at the age of 58.

Edward A. Meyer, assistant to the general managers of the Chicago, Milwaukee, St. Paul & Pacific, with headquarters at Chicago, died on July 15 while on a vacation at Spirit Lake, Iowa. Mr. Meyer served the Milwaukee as a trainmaster at Chicago and in July, 1918, he was promoted to superintendent, with headquarters at La Crosse, Wis., later serving in that capacity at Austin, Minn., Dubuque, Iowa, and Green Bay, Wis. In 1932, he was appointed manager of the safety and fuel departments, with headquarters at Chicago, and on January 15, 1939, he was appointed assistant to the general managers, Lines East and Lines West, in charge of fuel conservation and rule examinations, with the same headquarters, the position he held at the time of his death.

Joseph W. Jamison, general counsel for the trustees of the St. Louis-San Francisco, with headquarters at St. Louis, Mo., died of anemia on July 15 at his home in Overland, Mo., (suburb of St. Louis). Mr. Jamison was born near Bolivar, Mo., on January 28, 1868, and studied law during his spare time while teaching school. He was admitted to the bar in Missouri in 1891 and two years later he was appointed registrar in the United States land office at Boonville, Mo., later becoming city counselor at that point. In 1903, Mr. Jamison became engaged in the general practice of law at St. Louis, and



Joseph W. Jamison

after 10 years he was appointed general attorney for Missouri for the Missouri-Kansas-Texas. He resigned this position in 1923 to return to the private practice of law, and in October of the same year he was made general counsel for the Southwestern Bell Telephone Company, remaining in this capacity until 1933 when he retired. In May, 1934, Mr. Jamison was appointed general counsel for the trustees of the Frisco, the position he held at the time of his death. Mr. Jamison was also active in the affairs of the American Bar Association and the Missouri Bar Association, serving as president of the latter in 1930.